

# Antiquity

## A Quarterly Review of Archaeology

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### Editorial Notes

NO one would accuse ANTIQUITY of backwardness in asserting the claims of archaeology to be recognized as an important element in general culture. Archaeology has revealed the pedigree of man and traced the evolution of his civilization to its sources. The knowledge thus acquired should form a part of the cultural background of every educated person ; and it should be supplemented by at any rate the rudiments of earth-history. We are still far from the time when education shall have achieved these results, which may be postponed until the present phase of intensive nationalism has produced the inevitable reaction.



Archaeology has completely revolutionized our ideas about man's place in nature and about the origins of culture, just as astronomy has revolutionized our knowledge of the universe. To appreciate this, one has only to compare modern conceptions with the primitive folk-tales that formed the basis of culture a century ago. The positive results are so devastatingly complete that we can afford to consider the limitations of archaeological method with impartiality. When we can discover an Indus civilization, we need not be unduly troubled because we do not know the name of the man who built Stonehenge. Nevertheless, to be perfectly fair, let us admit that at the bottom of our hearts we should all like to know something about him.

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The two methods are admirably illustrated by the story of King Alfred and the Danes. The facts as we have them from historical sources are almost too well known to mention. The Danes began by raiding England, and eventually conquered it and settled there. They were resisted by Alfred, to whose efforts we may ascribe the exclusion of Wessex from that settlement, and the confinement of the Danes to the region northeast of Watling Street. Were we dependent solely upon archaeological evidence, we should know little or nothing of the Danish invasions—a few weapons that might have been imported and some sculptured stones are practically all we have to show. The rare earthworks they constructed are ascribed to them on purely historical grounds; not one of them has been excavated. We might infer an invasion from the existence of defensive earthworks constructed against them by the Saxons; but here again the case is hypothetical, for neither have these been excavated. We might know of Alfred as a man who lost a valuable jewel in Somerset; but there could be nothing in this to associate him in any way with the Danes.



What could archaeology tell us of Caesar's invasion of Britain, or of Alexander's conquests? It may be argued that it was the subsequent invasion of the Romans that really counted historically, and that there is abundant archaeological evidence of this. But that argument will not hold in the other case, for it was Alexander himself who did all the conquering, and without him it is pretty certain that the influence of Greek culture could never have penetrated those regions. Again, archaeology has so far revealed no traces of the great voyages of discovery of Pytheas and the Phoenician circumnavigation of Africa, of Christopher Columbus and Sir Francis Drake. And what concrete archaeological remains are there of St. Columba's foundation? Nothing commensurate with his achievements. The great pioneers of human progress elude our grasp through a defect—apparently irremediable—in the nature of our evidence.



On the other hand, archaeology sometimes comes very near to revealing achievements as dramatic in their way as those just mentioned. The Viking grave recently found in Canada, if authentic (see *ANTIQUITY*, 1938, XII, 232; it is still unpublished otherwise) would be proof of



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first contact between the Old World and the New, even if we were not already expecting something of the kind on historical grounds. The foreign stones of Stonehenge testify an undertaking of epic dimensions. But such glimpses are rare. There must have been great pioneers, leaders, discoverers, in all periods, prehistoric as well as later. It is arguable that some of the great figures of history did more harm than good, and the same may be true of the present day. But whatever views we may hold about this, it cannot be denied that they form part of history and that they elude the prehistorian.



Material progress is registered rather by useful inventions and discoveries than by meteoric appearances, by the discovery or invention of fire (and later of matches), pottery, weaving, agriculture, metals, the wheel and all those and other things consequent upon what Professor Gordon Childe has aptly called the First and Second Revolutions (*Man Makes Himself*, 1936). But these were probably communal and gradual processes for the most part, rather than the sudden innovations of a single individual.



Archaeology, in short, enables us to reconstruct, by inference and the creative imagination, the culture of groups. But it stands in constant need of cross-bearings from other directions to establish any given position. When, in America, Professor Douglass applied such cross-bearings by his invention of dendrochronology, it was found that both geological and archaeological dead reckoning was sadly out (*ANTIQUITY*, 1937, XI, 409-26). So too there is constant need of comparative material to check the assumptions of, for example, pot-study, as readers of Mr Casson's article in this number will realize (pp. 464-73).



The Prehistoric Society's excavations at Woodbury have finished for the year and have established many important conclusions. We do not like to anticipate the publication of the Director's preliminary report, which will appear shortly in the Society's Proceedings. Consequently we will only say that the site was occupied by an agricultural people during the earliest phase of the Iron Age ; and that the remains

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found have helped to explain a number of other already known sites. As President of the Society and initiator of this, its first excavations, the present writer followed them with the closest interest. Not the least valuable part was the experience of excavation gained by the volunteer members who took part. It is intended to excavate the site completely, and the excavations will be resumed next March. A programme of operations has already been drawn up, embodying the results of last season's experience. The whole cost of the work was borne by voluntary contributions from members of the Society and others, and the money thus raised was all spent. (The accounts will be circulated to subscribers on the conclusion of the excavations next year). Meanwhile, since the Prehistoric Society has no reserve fund for this purpose, several hundred pounds will have to be raised before March. The present writer appeals to all who read this to support a live undertaking and send a contribution to Mr E. M. M. Alexander, Hon. Treasurer of the Prehistoric Society, c/o British and Medieval Antiquities, British Museum, London, W.C.



### ANTIQUITY for the Year 1939 (Volume 13)

As usual at this time we remind our Subscribers of the completion of a volume, and the related subject of subscriptions, without which this Journal cannot exist. We therefore ask them to give attention to the notice and envelope inserted in the present number. An early response will save Subscribers and Editors trouble—the former from receiving later reminders and the latter a certain measure of anxiety.

*The form is omitted from copies sent to subscribers who pay through their banks or who have paid in advance for 1939.*



# The Parthian Structures at Takht-i-Sulayman

by DONALD N. WILBER

A RECENT survey of the fortified site of Takht-i-Sulayman situated some distance south of Tabriz and near the northwest corner of Iran has brought to light architectural remains of the Parthian, Sasanian and Islamic periods.<sup>1</sup> A plan of the entire area is given in FIG. 2. Among the numerous ruined structures are two buildings of the Parthian period;<sup>2</sup> the larger of them has already received brief mention by earlier visitors to the site.<sup>3</sup> These two buildings

<sup>1</sup> Takht-i-Sulayman was visited in October 1937 by the eighth Architectural Survey expedition of the American Institute for Iranian Art and Archaeology. The ruins were photographed by Arthur Upham Pope, the Director of the Institute, and Stephen Nyman, and surveyed and recorded by Donald Wilber, John McCool, Dr J. Christy Wilson and Clair Armstrong. A first account of the results was given in the *London Times* of 18 February 1938 and additional photographs were published in the *Illustrated London News* of 26 February 1938: both articles were by Arthur Pope. The history of the place, called Shiz by the Arabs and Phraaspa in Parthian times, is discussed by Mary Crane: 'II, The Historical Documents' in the *Bulletin of the American Institute for Iranian Art and Archaeology*, December 1937. In this same publication a general description of the architectural remains is given; Donald Wilber, 'III, Description of the Extant Structures'. In the preparation of the present article the author received valuable suggestions from Professor E. Baldwin Smith of Princeton University.

<sup>2</sup> The buildings are shown in FIG. 2 as A and B.

<sup>3</sup> Sir Robert Ker Porter in *Travels in Georgia, Persia, Armenia, Ancient Babylonia, &c.* (London, 1821-22), II, p. 560 says 'to the southwest, a large square building of hewn stone, with a wide columned portal of a hard red kind of marble. Part of the shafts and torus of the columns were still there, with some fragments of a curious fretwork carved on the same sort of stone'. Henry Rawlinson in 'Notes on a Journey from Tabriz, through Persian Kurdistan, to the ruins of Takhti-Soleiman, and from thence by Zenjan and Tarom, to Gilan, in October and November, 1838, with a memoir of the site of the Atropatenian Ecbatana', *Journal of the Royal Geographical Society*, x (1841), p. 52 reports 'a small square enclosure of four walls rudely built of unhewn stone, near the south-western face of the fortifications; part of the left hand column of the gateway is still standing, formed of huge blocks of a dark-red stone, which are cut into the shape of the outer half of an octagon, and are also carved with an ornamental pattern; two fragments of a shaft are standing erect in front of the gateway; two others are lying on the ground near it; and within the walls there are also two bases or capitals; for it is not easy to distinguish which; all formed of the same dark-red stone, that is not to be met with in any other part of the ruins'. A. Houtum-Schindler in his 'Reisen im Nordwestlichen Persien 1880-82', *Zeitschrift der Gesellschaft für Erdkunde zu Berlin*, 1883, XVIII, p. 328 describes the structure: 'Somewhat further west lay the ruins of a hall directed from north to south. The square stones of the gate were soft red sandstone . . . and on two round columns, which measured 0.80 m. in diameter, I saw traces of arabesques'.

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can now be described in detail and an attempt be made to establish their place in the history of architectural development.

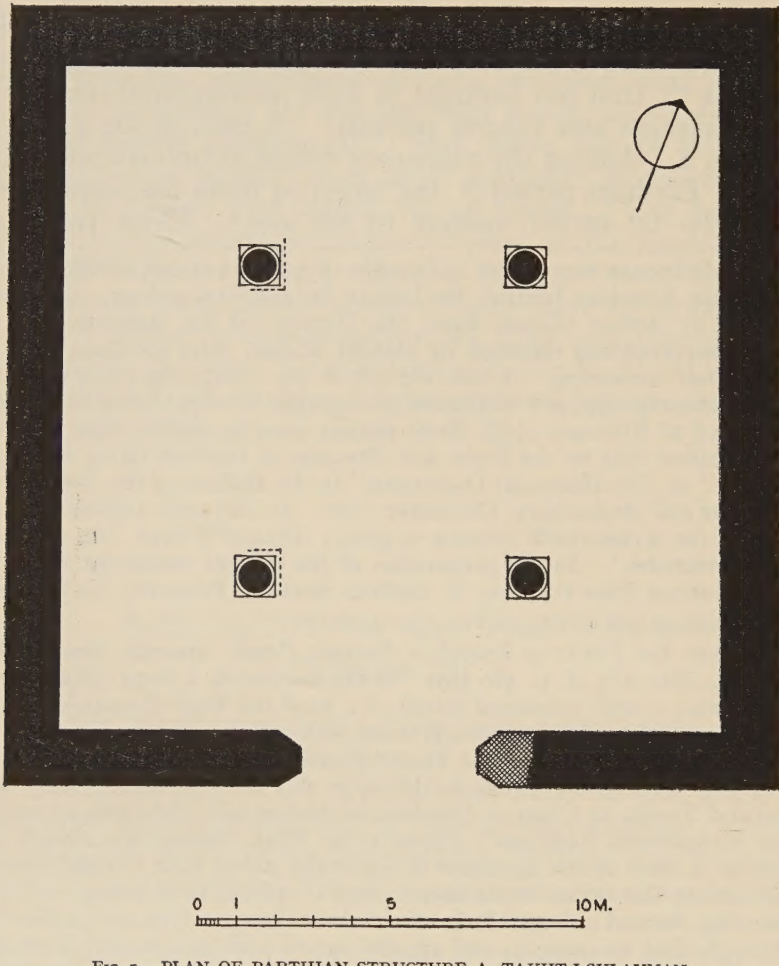


FIG. 1. PLAN OF PARTHIAN STRUCTURE A, TAKHT-I-SULAYMAN

### STRUCTURE A

PLAN. The larger structure faces south-southeast, is square in plan and with a single entrance. Its plan is given in FIG. 1 and a general view of the structure from the south in FIG. 11. The dimensions of the building are fairly uniform; three interior sides are 17.35 m. in



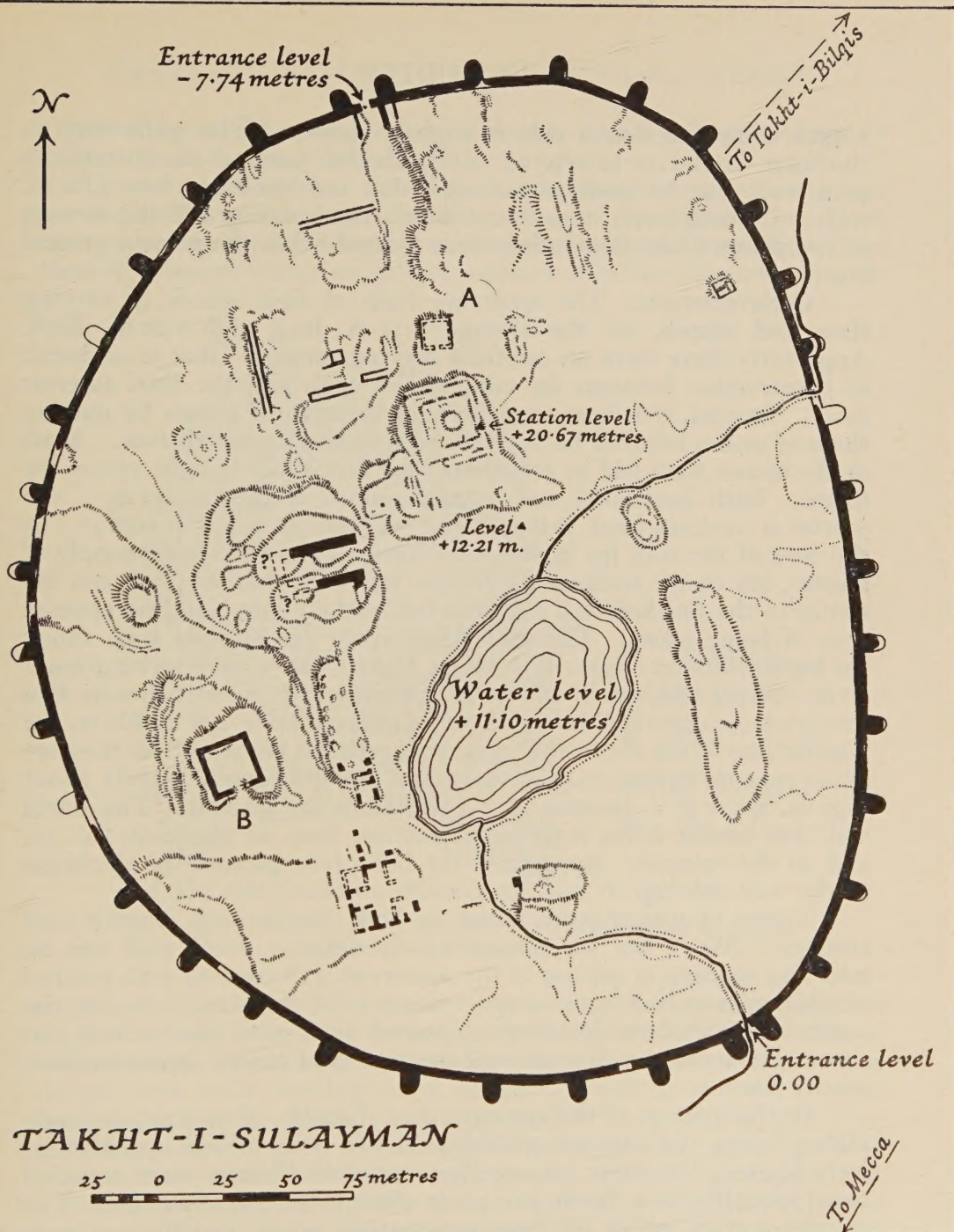


FIG. 2. SURVEY PLAN OF THE FORTIFIED ENCLOSURE OF TAKHT-I-SULAYMAN

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length while the fourth side is slightly shorter. The walls vary in thickness from 1.35 to 1.50 m. Only the left jamb of the entrance is preserved, but its position indicates that the doorway was 4.60 m. wide. Column bases were found within the building and the corners of two column base foundations were located below the present ground level.

CONSTRUCTION. The walls are built of field stones of varying sizes and shapes, on the average 0.35 m. long and 0.20 m. high. Apparently there were no carefully dressed surfaces—that is no break in construction between the core of the walls and the final exterior faces. Instead, the faces were brought to uniform planes by making them of stones selected because they had a single smooth face. Most of the stones were laid as stretchers, but occasional upright pieces are found. Both horizontal and vertical joints average 0.035 m.; the mortar is medium hard, rather coarse and almost white in colour. In the core of the wall the stones were drowned in a generous supply of mortar, but on the surfaces the mortar was not forced out between the stones to the finished wall face and hence the joints have the appearance of being raked. The walls have sadly deteriorated with time; the highest section remaining is about 5.80 m. above the interior ground level. Small sinkings in the walls originally held wooden beams in a manner to be described later. A series of these holes are visible on the interior face of the south wall near the southeast corner where they are about 0.25 m. square, 0.40 m. deep and are spaced consistently about 1.50 m. apart at a distance of 3.25 m. from the ground. The north wall has similar holes both on its interior face, as shown in FIG. 12, and on the exterior. Apparently the holes here pierced the thickness of the wall although it was not possible to check this point.

Traces of plaster were noted on both interior and exterior wall surfaces. Above the beam-holes on the interior south wall was an area 2.25 m. high to the top of the preserved wall covered with patches of white plaster in a layer 0.015 m. thick. On the exterior face of the south wall the stone joints are buttered flush with plaster and just around the corner on the east wall are patches of plaster similar to those on the interior.

In the interior of the structure at a distance of only a few centimetres below the present ground level two column base foundations were located. In their construction stones of all sizes were crowded closely together and thrust into place without the use of mortar. The interior corner angles of these presumably square foundations were



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accurately planned : they are at distances varying from 5.70 m. to 5.81 m. from the interior walls of the structure.

DETAILS. A number of architectural elements executed in a fine grained sandstone were found. The source of this material may have been near the site, for according to the inhabitants of the nearby village there is a quarry where sandstone is found only four kilometres to the

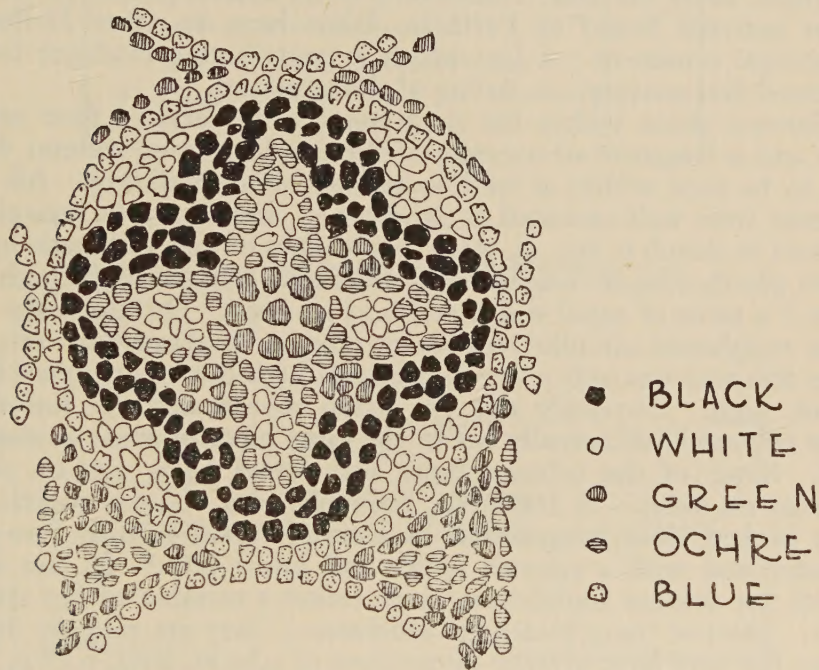


FIG. 3. CONTIGUOUS QUATREFOIL PATTERN FROM A MOSAIC FOUND AT POMPEII  
*after W. A. Briggs, 'Pompeian Decoration'*

south. Six sandstone blocks of the west jamb of the entrance remained in position ; all except the bottom one are decorated on a single one of their vertical faces with a carefully cut geometrical design. The design, now sadly weather worn, consists of contiguous and coupled cusped quatrefoils. Within each quatrefoil is a central disk with four radiating petal-like arms. The design is shown in FIGS. 13 and 14. This pattern is the most distinctive single feature of the structure and one which, if properly interpreted, should materially assist in dating the building. The motif is fairly common in early Byzantine stone carving



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but earlier appearances of it are quite rare although it is safe to say that the pattern is of Hellenistic and of western origin. A simplified example occurs in the familiar vault mosaics of Santa Costanza at Rome but the authentic prototype form can be traced to Pompeii. One of the earlier mosaic floors, pre-Christian in date, has an identical design; as FIG. 3 shows.<sup>4</sup> The pattern, executed in stone at Takht-i-Sulayman, bears the same relationship to its mosaic prototype that the stucco patterns found at Parthian Assur have to other Hellenistic geometrical ornament; a fact which is contributing evidence for the suggested first century A.D. dating of the structure.

Strewn about within the monument were parts of four column bases and a fragment of a capital. Broken lengths of column drums were to be seen within as well as outside of the building. All these elements were well executed in sandstone. Each base (a typical base is shown in sketch B, FIG. 4), was a single piece of material made up of a square plinth 1.02 to 1.05 m. on a side, and some 0.36 m. high with above it a torus of equal width and 0.24 m. high. On top of the torus was a roughened circular area about 0.82 m. in diameter; on some pieces this area was only a few centimetres high but on one piece it was 0.20 m. high. Obviously this projection represented the lower part of the column shaft actually cut in the same piece of stone as the base itself. Some of the column bases had dowel holes 0.05 m. square and 0.05 m. deep. A fragment, probably of a column capital, is a badly broken piece recognizable as a simple torus 1.06 to 1.10 m. in diameter and with a smooth upper and lower face.<sup>5</sup> In the debris around the column foundations were found a number of flat slabs of stone. Most of these pieces are sandstone; they are roughly dressed on one face and have average dimensions of 0.65 m. long, 0.38 m. wide and 0.12 m. thick. They were too few in number to make plausible a theory that the original floor of the structure consisted of a pavement of such slabs. Along with these flat stones were thick shapeless masses of white plaster undoubtedly fallen from the ceilings of the building.

RECONSTRUCTION. The restoration of the plan of the monument presents no difficulties; even the position of the columns was accurately established by the location of their foundation bases. The entrance

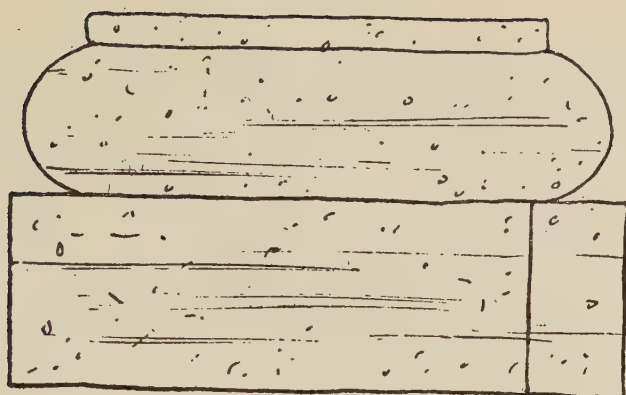
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<sup>4</sup> This mosaic is published in W. A. Briggs, *Pompeian Decoration*, London, 1911. It is shown on the third of the unnumbered plates. The author suggests that the mosaic dates between 200 and 80 B.C.

<sup>5</sup> The simple torus used as a column capital has a long history in the Near East, appearing at such different sites as Nineveh, Khorsabad, Tell Halaf and Susa.



A



B

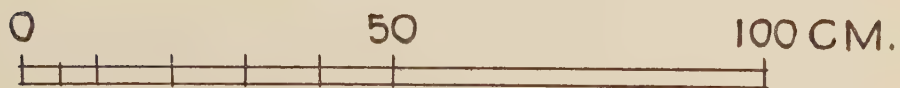
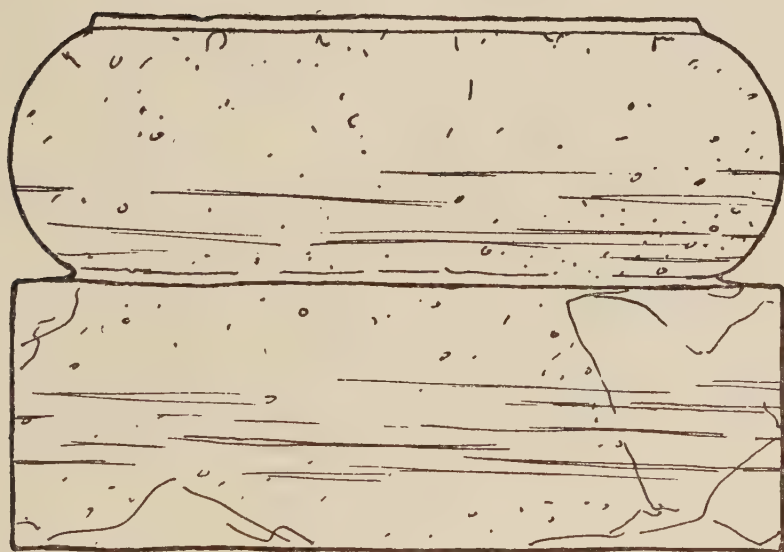


FIG. 4. SANDSTONE COLUMN BASES FROM THE PARTHIAN STRUCTURES

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doorway may have been spanned by a sandstone lintel upon which the pattern motif of the jamb was repeated and probably climaxed with a special motif directly above the middle of the door.

The superstructure of the building is less easy to visualize. The area to be covered over was a very large one and the walls seem thin and the columns small in relation to the total area, quite unlike the appearance of the plans of the smaller and better known Parthian structures where a more normal relationship between solids and voids exists. There is no reason to believe that any part of the roof was vaulted either in brick or stone: the site itself is almost unique in that no stones seem to have been taken away during more recent times, and we can reasonably assume that had cut stone vaults been employed some of the specially shaped elements required would have been noticed in the debris. There are no bricks in the ruins and no piles of stones within the interior of the structure such as would have resulted from the collapse of rubble masonry vaults. The clue to the reconstruction of the upper part of the structure lies in an interpretation of the beam holes. There are enough of these holes at a height of 3.25 m. above the ground to make certain the fact that there was a continuous platform framing at this level, and yet this point is not high enough to assume that these were the roof beams for in this case the columns would have been only four diameters in height. It is necessary to assume, as the isometric drawing of FIG. 5 shows, that there was a gallery 3.25 m. above the ground supported on tie beams set into the column shafts, and that the roof of the building was as high again above the gallery, giving the columns a total and normal height of about nine diameters. The contrast between the two-storeyed side-aisles and the unobstructed central area is perfectly logical; in this way a special accentuation of the focal point of the sanctuary was achieved.<sup>6</sup> The beams of the lower gallery may have been either covered by rough planking as shown in the isometric drawing or by woven mats and a layer of earth. The roof beams would have been covered with a layer of branches and matting, and then a fairly thick fill of tamped earth so sloped as to drain water towards the edges of

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<sup>6</sup> A comparable treatment is found in the early Sasanian fire temple, possibly little more than a century later in date than the building under consideration, at Robat-i-Safid in Khorasan. The plan is given in FIG. 10. Here the central dome chamber is flanked north and south by a long narrow room. These rooms have a series of beam holes in their walls which show that they were originally divided into three storeys. Slanting lines of beam holes indicate the original position of the wooden stairs.



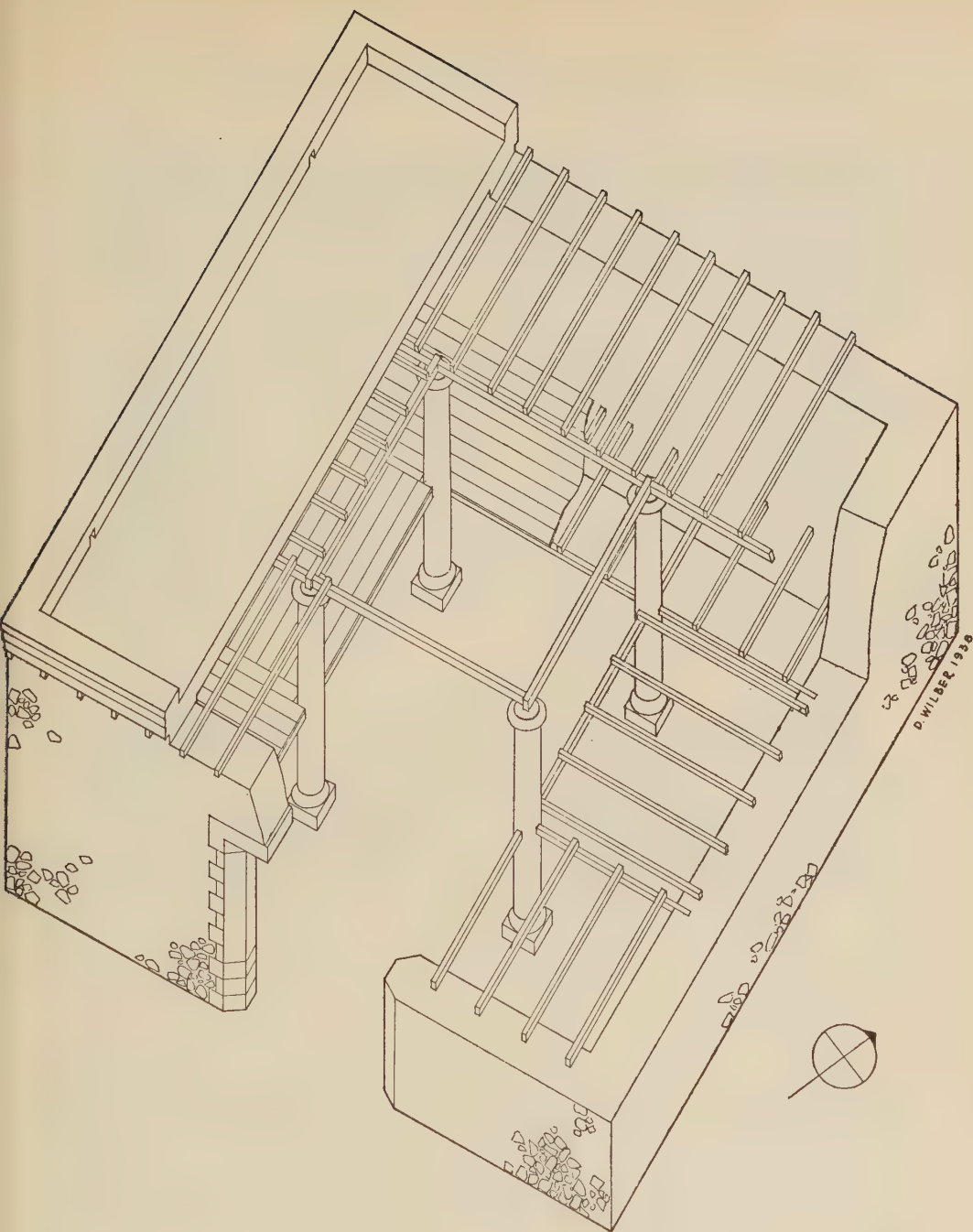


FIG. 5. RECONSTRUCTION DRAWING OF STRUCTURE A, TAKHT-I-SULAYMAN

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the roof. The central area within the columns must have had a distinctive treatment and emphasis in elevation as well as in plan ; instead of a flat roof over that area we must assume either a hypaethral opening (a light well open to the sky), or a conical or domical covering of wood. Such ideas are too conjectural to be represented in the reconstruction drawing, but the problem will be discussed at some length in the following pages.

Historical precedent strongly suggests the necessity for a crowning parapet member on the walls of the structure. One possibility—a modified classical cornice executed in stone and of the type found on Nabataean temples and at Hatra—seems unlikely since some fragments of dressed stone would have been preserved. A more plausible idea may be that the beam-ends were allowed to protrude and to support a cornice of wood ; there is good precedent for such a treatment in buildings going as far back as the Achaemenian period. Possibly a stepped battlement carried out in pieces of baked terra-cotta crowned the parapet, but this element has not been shown in the reconstruction drawing.

### STRUCTURE B

PLAN. Structure B seems to have been exactly similar to structure A except that it is a good deal smaller in size. Its plan is given in FIG. 10. It faces almost due south and by analogy with the other building the entrance is assumed to have been on that side. The location of the east and west walls and the northwest corner of the structure was determined although only a few stones of the lowest course of the wall remain in position. The distance from the exterior face of the east wall to the west exterior face is 11.72 m. ; the sides of the interior plan are thus taken to be about 8.50 m. long.

CONSTRUCTION. Not enough of the structure is preserved to justify comments.

DETAILS. Within the limits of the structure a column base of the same type as those from structure A was located. It appears in FIG. 4, sketch A. Its base diameter or breadth is 0.83 m., the torus above is 0.79 m. in diameter with a roughened area on its upper face intended to receive the column-shaft, which is 0.61 m. in diameter. A notch has been cut out of one corner angle. Near the southwest corner of the building a sandstone column drum is embedded in the ground ; 0.40 m. of it protrudes above ground and its diameter is 0.52 m. A few metres east of the building is another buried drum



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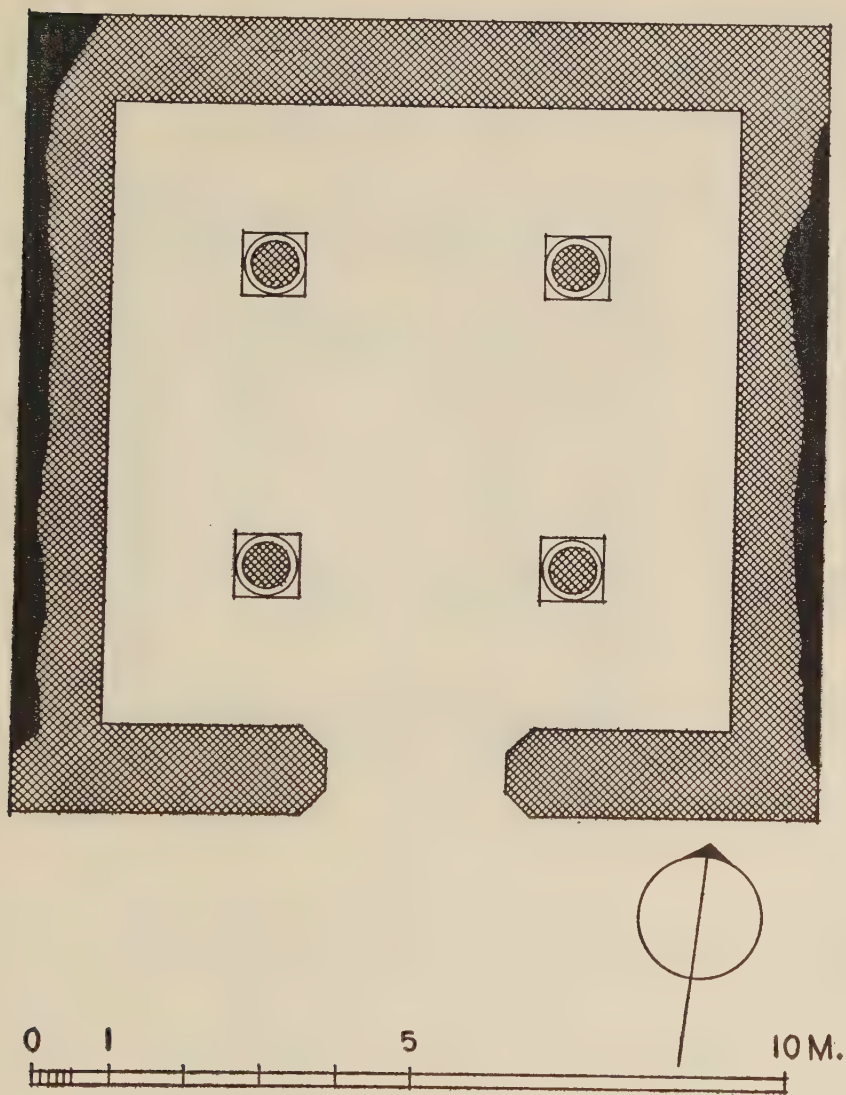


FIG. 6. PLAN OF PARTHIAN STRUCTURE B, TAKHT-I-SULAYMAN

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0.56 m. in diameter, of which 0.72 m. protrudes above ground level. Further away are additional drums of about this same size.

RECONSTRUCTION. While the data for a reconstruction of the building is most inadequate it is certain that it followed exactly the type of structure A on a considerably smaller scale.

### HISTORICAL SIGNIFICANCE OF THE TWO STRUCTURES

The combination of various types of evidence has led to the conclusion that these two structures are of the Parthian period, probably erected during the first century A.D. There is, for example, the fact that the site is known to have been an important Parthian city (named Phraaspa) and that these two structures are distinctly different in plan arrangement and construction from the other ruins at the site, which are clearly from the more familiar Sasanian and Islamic periods. The evidence of the details is indicative; the bases and capital with the flattened tori and especially the ornament on the door jamb. The fact that the same amount of stylization of a prototype form is reflected here as is found in the ornament at Assur suggested the first century A.D. dating. The plan type, the single unit sanctuary form, has close affinities with buildings at better known Parthian sites.

The two structures seem to demand a special study which will establish their position in the history of architecture. It will be necessary to compare them with sanctuaries from other Parthian sites, to look for the origin of this particular plan form, to consider the manner in which the structures were roofed as an aid in tracing the development of the plan form and to point out the influence of this type of structure upon architecture in this region of a later date.

Although there are only a handful of Parthian sites which can be drawn upon for comparative material, in all those which have been excavated or recorded the square chamber used primarily as a sanctuary but sometimes as the most important unit in a building has been found.

Within the great enclosure wall of the Parthian city of Hatra are several such plan elements. Most noteworthy among them is the so-called temple of the Sun-God<sup>7</sup> located behind the principal building of the palace and reached by a door placed off centre in the rear of the great south liwan of the palace. The plan, illustrated in FIG. 7,

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<sup>7</sup> Walter Andrae, *Hatra nach Aufnahmen von mitgliedern der Assur-expedition der Deutschen Orient-Gesellschaft*, I, Leipzig, 1908, pls. II and X and vol. II, Leipzig, 1912, fig. 221, pls. VII, IX, XI.



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consists of a square within a square. The walls are of stone rubble faced with regular courses of cut stone blocks. The inner square of the plan is 11.80 to 11.95 m. along the sides ; it was roofed with a tunnel vault, also of cut stone, running east-west. The walls of the room are over two metres thick and the springing line of the vault is some eleven metres from the ground. The corridor around the inner

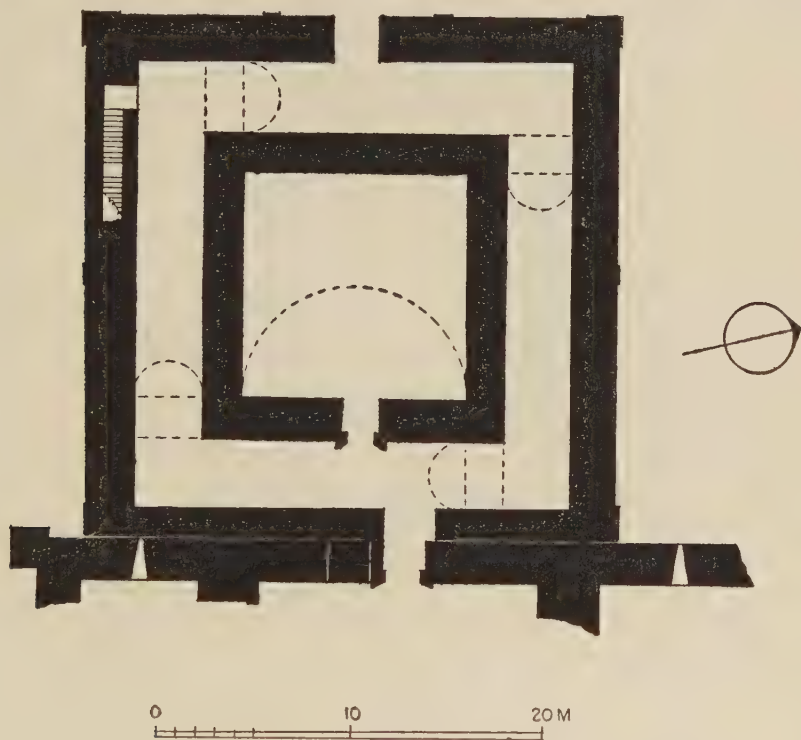


FIG. 7. PLAN OF THE SANCTUARY OF THE SUN-GOD AT HATRA  
*after* Walter Andrae, 'Hatra'

chamber is also tunnel vaulted. The important location of this unit and its extremely good construction make it a characteristic example of the use of this plan form at Hatra ; there are, however, at least nine comparable plans at the site in some of which a slightly rectangular central chamber is found. The other examples occur as grave-monuments, as free standing buildings and at the rear of liwans ; in all cases they are covered by tunnel vaults.

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Excavations in the Parthian level of the city of Assur have brought to light several examples of this same plan. Some are relatively isolated units, but the most important example for comparative purposes comes from near the northeast corner of the palace where it is associated with the earliest Parthian construction. The room, the plan of which is given in FIG. 8, is not a square ; it is 14 m. on two interior sides and 12 m. on the others. The walls are two metres thick. Within the room are four large piers the position of which recalls the placing of the columns in structure A at Takht-i-Sulayman. The walls and piers are of brick and, according to the excavators, they carried a vaulted roof also of brick.<sup>8</sup> Above the pier arches themselves were walls running east-west. Between these two walls and the north and south walls of the structure ran the tunnel vaults of brick. The main entrance to the chamber was at the middle of the south side.

Other buildings constructed at about the same period in a region considerably to the west of the Parthian domain supply the archetype form of the square sanctuary. These are Nabataean temples built of cut stone and dating from the first century before and the first century after Christ. Two such temples are illustrated in FIG. 9.<sup>9</sup> The essential unit of the smaller temples of this type is a square or slightly rectangular central chamber. Sometimes this chamber alone comprises the temple, sometimes it is fronted with a distyle entrance porch and sometimes there is a passage-way on all sides of the central chamber. This standard plan is used so frequently in this area, and the examples are so similar to each other, that it is necessary to postulate a long series of well developed prototypes ; to believe that the Nabataean temples followed still earlier pagan temples which probably had first been erected in Arabia proper. In using these temples as comparative examples the interior arrangement of their central chambers is especially to be noted : apparently most of them had four columns placed to form a square in the same manner as in structure A at Takht-i-Sulayman.<sup>10</sup> The method by which these temples were roofed has not been treated very fully by their recorders but the suggestion was

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<sup>8</sup> Walter Andrae und Heinz Lenzen, *Die Partherstadt Assur*, Leipzig 1933, fig. 20.

<sup>9</sup> Plans of a number of these temples are given in H. C. Butler, ' Nabataean Temple Plans and the Plans of Syrian Churches ', in *Studien zur Kunst des Ostens*, Vienna, 1925, pp. 9-16.

<sup>10</sup> In most cases the columns were not actually found *in situ* but lying in the nearby vicinity ; see H. C. Butler, *Princeton Expedition to Syria*, division II, Ancient Architecture, section A, p. 374.



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made that the space included within the four columns was crowned with a hypaethral opening.<sup>11</sup>

Butler has demonstrated the influence of these Nabataean temple-plans upon both the Roman temples of but slightly later date, and upon the Christian churches of Syria. It is now possible to call attention

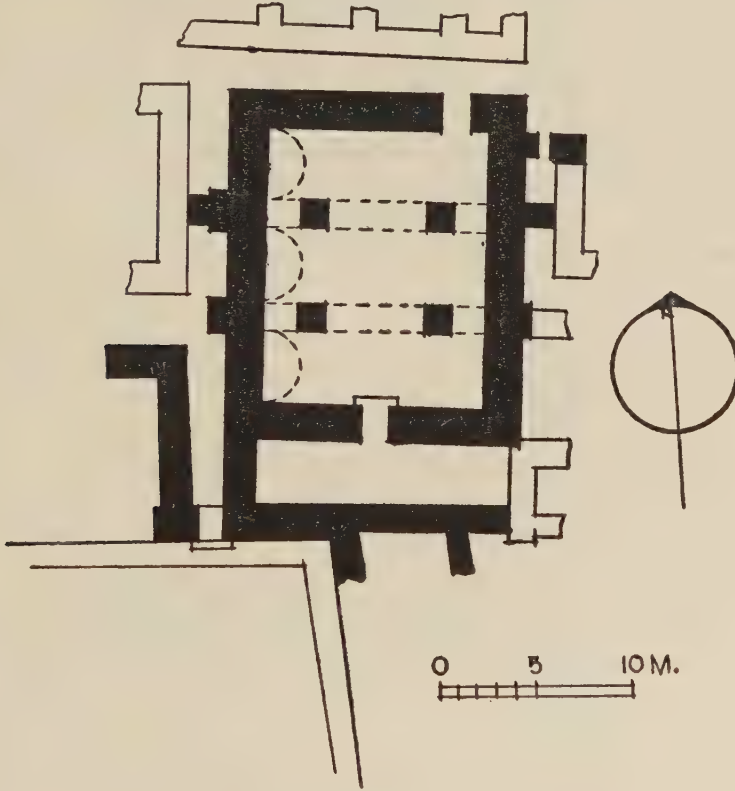


FIG. 8. PLAN OF THE EARLY PARTHIAN SANCTUARY AT ASSUR  
after Walter Andrae and Heinz Lenzen, 'Die Partherstadt Assur'

to the influence of this plan type, the square sanctuary frequently with interior columns, upon Parthian architecture and especially upon the structures at Takht-i-Sulayman. The fact that Parthian architecture was highly eclectic in nature need only be mentioned here. It would be easy to show that the constructional features and ornamental details

<sup>11</sup> See Butler, *Studien zur Kunst des Osten*, p. 11.

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of buildings at the various Parthian sites copy quite closely the earlier regional forms. The Nabataean sanctuary plan was one of the borrowed forms which was somewhat altered in order to conform to the building materials and methods in vogue at each Parthian site. At Hatra construction in cut stone was highly developed; tunnel vaults large enough to cover spaces of any desired size could easily be erected so that the use of the four auxiliary columns within the central sanctuary chamber was unnecessary. At Assur the material was baked brick and tunnel vaults were used to cover the chamber, but the use of bricks limited the width of spans and made intermediate supports advisable. For greater stability in this material piers instead of columns were used. At Takht-i-Sulayman, the site most distant from the Nabataean region, the closest copy of the archetype form is found.<sup>12</sup> Here is the square chamber with the four interior columns varying from the Nabataean plans only in the fact that the building is much larger in size. The column bases seem to be provincial copies of the flattened Nabataean torus moulding, and the ornament on the door jamb although not directly traceable to Nabataean forms clearly derives from the same western sources as does the Nabataean decoration.

A specialized problem concerns the manner in which the Takht-i-Sulayman structures were roofed. The reconstruction drawing shows a flat roof over the side aisles of the building, a type of covering suggested by the beam holes in the lower walls. The difficult question is how the central area enclosed by the columns was treated. Butler suggested that this same area in the Nabataean temples had merely a hypaethral opening. At Takht-i-Sulayman direct evidence is lacking; possibly there was a hypaethral opening but it is also possible that a wooden dome was used. The mention of the possibility that a central dome of wood may have been used gives rise to an interesting consideration of a more general nature. During the third, fourth, fifth and following centuries of the Christian era the dome achieved a position of great importance in architecture, in Syrian and Byzantine churches, Roman monuments and Sasanian temples. The reason for this rather sudden and universal popularity of the dome has never been satisfactorily explained. It is, however, a fact that in the earlier

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<sup>12</sup> There is another Parthian structure whose plan is almost as close to the Nabataean form but a drawing of it has not yet been published. The structure is a mausoleum the principal chamber of which is square in plan and with four cruciform piers forming an interior square. It was discovered by Soviet excavators at Nesa near 'Ashqabad and is referred to in an editorial note in *A Survey of Persian Art* (forthcoming), I, p. 444.



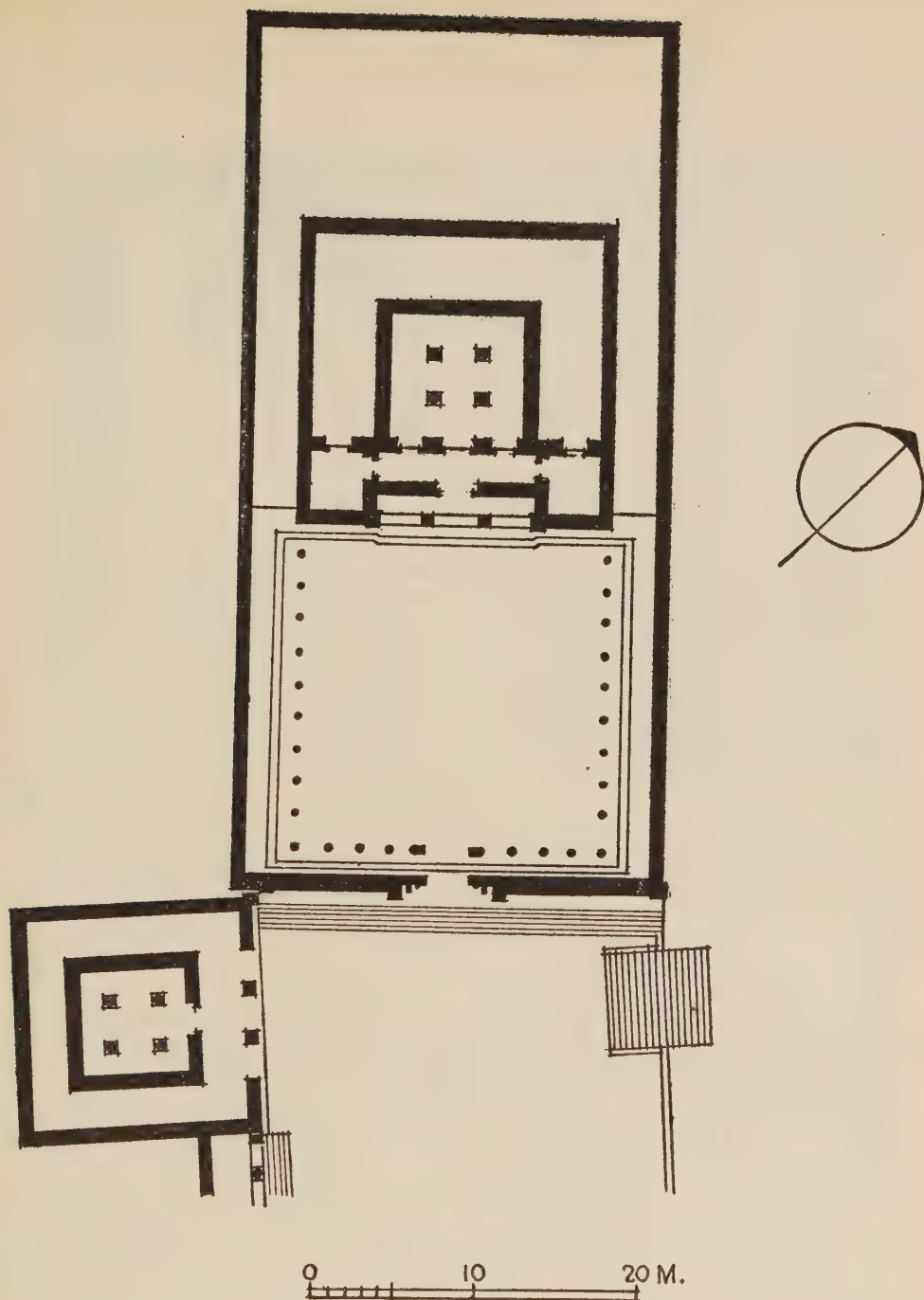


FIG. 9. PLANS OF THE NABATAEAN TEMPLES OF BA'AL SHAMIN AND OF DUSHARA AT SI' (SEEIA)  
*after H. C. Butler, 'Ancient Architecture in Syria'*

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historical periods, in Egypt and in Mesopotamia, the familiar dome and the vault were consistently employed for utilitarian purposes such as storage rooms or were restricted to the less important parts of the buildings. The abrupt change which takes place in the opening centuries of the Christian era with the use of imposing domes over square rooms of sanctuary nature must have had strong motivation, and this motivation seems to have been of an ideological and symbolical nature. Somewhere about the beginning of the Christian period the dome as a shape and constructional form must have become closely associated with the idea of sanctity ; just how this association arose is still to be determined. It is obvious that experiments in the use of large-scale domes must have preceded those of the fully developed type that still survive. Tentative efforts would naturally be made in the materials which were easiest to work with and there is a certain amount of evidence to show that domes built of wooden members were common during the early Christian period.<sup>13</sup> Actually the process by which the dome acquired its ascendant position can be outlined. The square sanctuary undoubtedly began as an entirely open area surrounded by a low wall. In time actual buildings of this same shape were erected and roofed over. With a definite increase in the scale of the plans along with the accentuation of the central part of the sanctuary a search was made for an adequate and dignified means of covering this area. Possibly a hypaethral opening was used at first. Then the developing ideology of the dome over a sanctuary was grafted onto the structural problem and resulted first in the use of domes of an impermanent nature, of wood, and finally in the familiar and effective combinations of central masonry domes with subsidiary domes and vaults. Hence the answer to the question of whether the central area in the Takht-i-Sulayman structures had a hypaethral opening or a wooden dome might depend upon their relative position in the slow evolution of the masonry domed building. Considering the fact that the Parthian sanctuaries at the other sites are so solidly roofed, and that the buildings at Takht-i-Sulayman are probably of the first century, it would seem that this is just the stage in the evolution when a wooden dome would have been used.

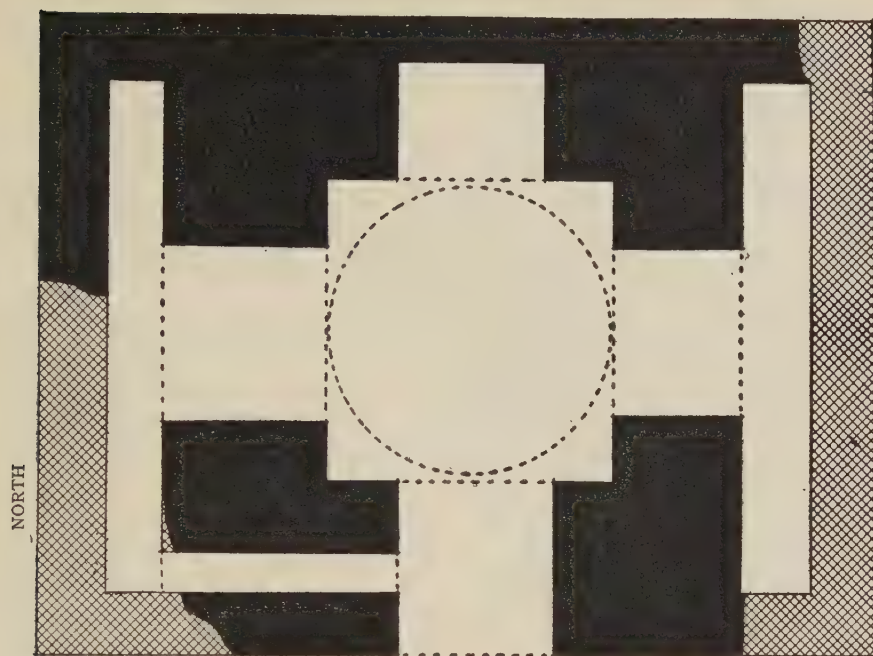
The preceding paragraphs should be indicative, perhaps conclusive,

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<sup>13</sup> There is no reason for examining this evidence at any length. Monuments which are either known to have had or are thought by some scholars to have had domes of wood include the church at Kal'at Sim'an, the cathedral at Bosra, the church of Constantine at Antioch and the Dome of the Rock at Jerusalem.



# PARTHIAN STRUCTURES, TAKHT-I-SULAYMAN



## ROBAT SAFID



1936

■ EXTANT      ▨ RESTORED

FIG. 10. PLAN OF THE EARLY SASANIAN TEMPLE NEAR THE VILLAGE OF ROBAT-I-SAFID IN KHORASAN  
On the south and east sides are traces of contemporary elements of an attached or adjacent building

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evidence of the fact that the plan form, structural and decorative Parthian features at Takht-i-Sulayman reflect influences moving from the west in the direction of the east at a period coinciding with the opening of the Christian era.

An additional subject remains for consideration. Having pointed out the prototype examples for the structures at Takht-i-Sulayman it is necessary to investigate what influence these monuments, and others no longer extant, may have had upon subsequent architecture in neighbouring regions. More specifically we can see how Sasanian architecture reflects such influences.

Dr Herzfeld has pointed out the plan relationship between the sanctuary of the Sun-God at Hatra and the temple of the Hellenistic period at Kuh-i-Khwaja in south-eastern Iran.<sup>14</sup> He has also called attention to the Arab and Nabataean prototypes of this square sanctuary form and quite recently Monneret de Villard has restated and expanded this idea.<sup>15</sup>

The noteworthy thing about the new structures at Takht-i-Sulayman is that they supply the actual physical links for an illustration of the debt of Sasanian architecture to earlier western plan forms. They enable a more specific connexion to be made between regions distant in time and place than was previously possible and help to clarify an understanding of monuments whose forms resulted from a fusion of cross currents of architectural influences. The facts are these. The norm plan of a Sasanian fire temple could be described as a central dome chamber, with its four walls pierced by portals and surrounded by a narrow tunnel-vaulted passage-way with small domes at the corner intersections. However, variant forms do exist: there is the isolated dome chamber type and the dome chamber with a corridor along some but not all sides. Indeed the norm plan may be comparatively late in date, for it would now seem as if the temple plan was in a state of flux and change during the opening years of the Sasanian period. The temple at Robat-i-Safid, shown in FIG. 10, is generally recognized as being the earliest such Sasanian structure and here the arrangement is unusual, perhaps rudimentary, for there are passages or rooms on only two sides of the building. The central chamber with its rubble masonry dome on squinches is true to the Sasanian norm, but

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<sup>14</sup> Ernst Herzfeld, *Archaeological History of Iran*, London, 1935, p. 88-89.

<sup>15</sup> Ugo Monneret de Villard, 'The Fire Temples', in the *Bulletin of the American Institute for Persian Art and Archaeology*, December 1936, p. 175-184.



PLATE I



FIG. II. STRUCTURE A, SEEN FROM THE SOUTH

PLATE II



FIG. 12. BEAM HOLES IN THE INTERIOR FACE OF THE NORTH  
WALL OF STRUCTURE A

*ph.* Arthur U. Pope





FIG. 13. THE PRESERVED LEFT JAMB OF THE ENTRANCE TO STRUCTURE A  
*ph.* Arthur U. Pope

PLATE IV

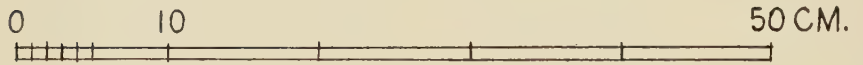
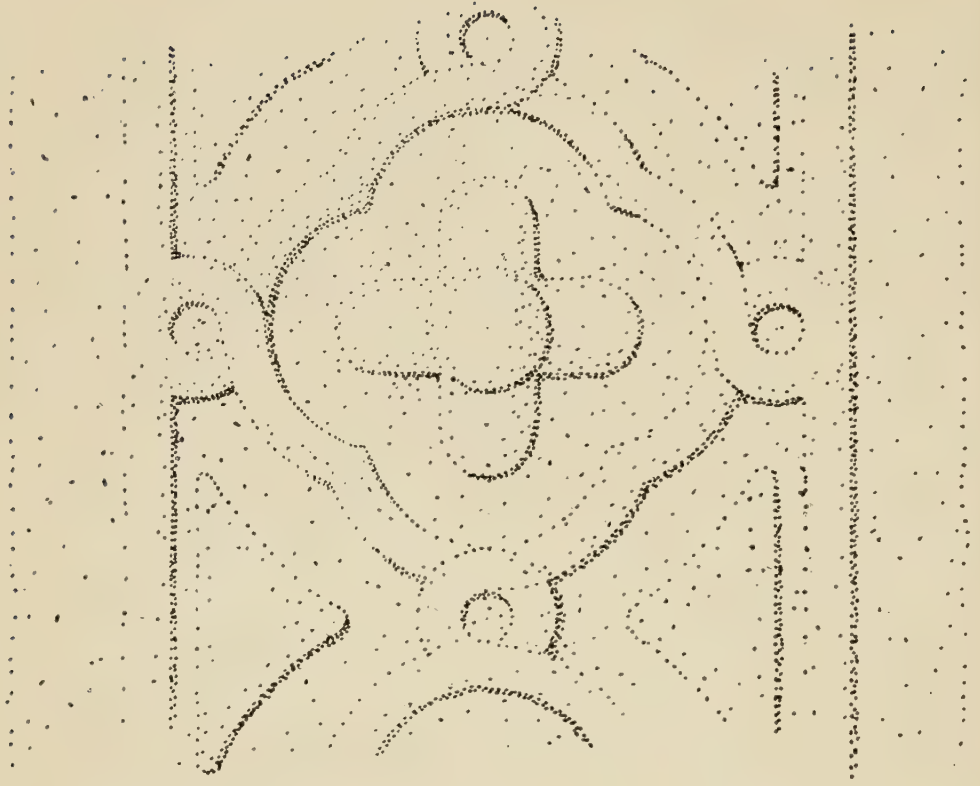


FIG. 14. DETAIL DRAWING OF THE PATTERN MOTIF ON THE LEFT ENTRANCE JAMB OF STRUCTURE A



## PARTHIAN STRUCTURES, TAKHT-I-SULAYMAN

here it is clearly in the stage of structural experiment since the dimensions of the chamber are most irregular and because the squinches rest upon a series of wooden beams which bridge the corner angles of the structure. Since the dome is used in such a tentative manner over the square sanctuary the question naturally arises as to how it found its way into this architecture at all. Herzfeld and Monneret de Villard have related this type of plan to the Nabataean temples, but have not

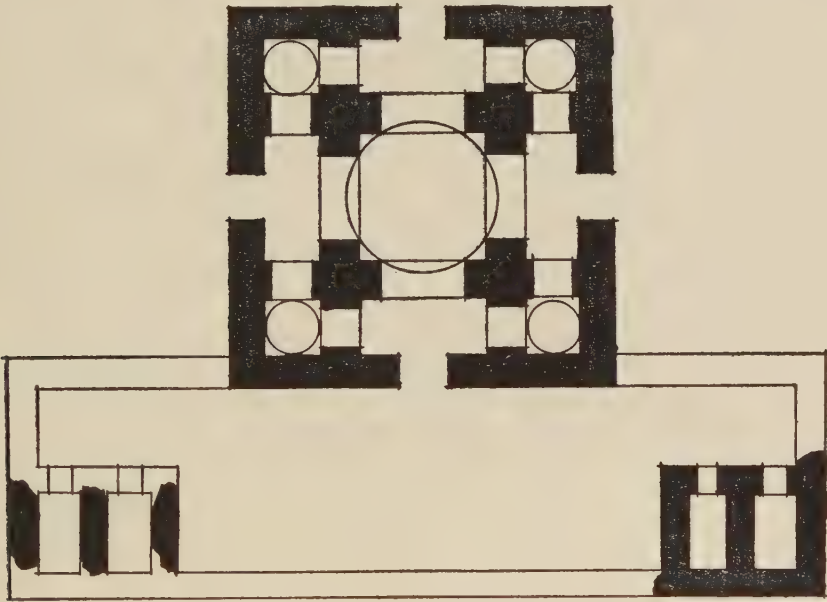


FIG. 15. PLAN OF ONE OF THE SASANIAN FIRE TEMPLES IN THE VALLEY OF GIRA,  
PROVINCE OF FARS

*after Ernst Herzfeld, 'Archaeological History of Iran'*

tried to explain the divergence in superstructure between model and copy ; that is to say why a masonry dome suddenly appears over a plan of western origin. Of course constructional changes are often profoundly influenced by local materials and methods ; but in this case the problem is a more fundamental one. We are asked to explain the sudden popularity of the dome in Sasanian architecture. The sequence of development may have followed this course. From the Nabataean temples the square sanctuary chamber came to the Parthian architects, who passed it on to the early Sasanian builders. In Iran a norm plan

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was then evolved through successive trials. In the first attempts the four columns of the Nabataean and Parthian sanctuaries were replaced by a solid wall since the architecture was still in a stage of structural uncertainty. Later the walls were pierced with wider openings, and finally became light corner piers such as are found in the temple at Gira, one of which is shown in FIG. 15. The manner by which the central area was covered followed a somewhat different course. The symbolical importance of the dome in the western lands struck a responsive chord, and the idea itself was seized upon but not the western technique of construction in light materials, for in the traditions of the lands to the east of Iran another method of vaulting a square area had long been practised. It consisted of small timbers laid in over-lapping tiers across the corner angles of a chamber until an opening small enough to be easily crowned by a masonry dome had been created. These domes had remained for centuries in a rudimentary form and had had no traditional association with sanctuary structures. It was the new ideological importance of the dome imported from the west which led to its use over the Nabataean and Parthian type plan. The zeal of the Sasanian builders led to a chain of experiments with their primitive native form and finally to the competent handling of the monumental domes on squinches which can be seen at such familiar sites as Firuzabad, Sarvistan and Kasr Shirin.



# Long-Houses and Dragon-Boats

by CARL WHITING BISHOP

STUDENTS no longer seriously regard the Chinese civilization as unitary in origin—as derived, in other words, from any single source. It appears rather to have developed out of the interaction, over a long period, of several antecedent cultures. Certain of its elements, past or present, are northern, even circumpolar, in distribution.<sup>1</sup> Others appeared first in the distant West, and only reached China (overland, not by sea) considerably later.<sup>2</sup> Others still originated in southeastern Asia itself. Among traits of the last-named class are the two forming the subject of the present paper.

Observers long ago pointed out the existence in southeastern Asia and parts of the East Indian archipelago of an integrated group of phenomena forming together what is known as a culture-complex.<sup>3</sup> Among features characterizing this are the following. A dog-progenitor myth is very widespread. Goddesses<sup>4</sup> and 'priestesses' (the latter often nothing more than female shamans or exorcists) play a conspicuous role in religious belief and observance. There are traces of a former matriarchate with female rulers, and of a custom of brother-and-sister marriage, at least among ruling families.<sup>5</sup> Re-interring or 'second burial' of the bones of the dead, often in jars, is widely practised. Respect is shown to superiors by squatting, not by bowing or prostration, as in the West and among the Chinese culture-group

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<sup>1</sup> Among these are traces of a former bear-cult; the use of pit-dwellings; the compound bow; the coracle; and the semilunar or rectangular stone knife—the 'woman's knife' of the Eskimo.

<sup>2</sup> Examples are, the use of bronze and of the war-chariot; the ox-drawn plough and the growing of wheat (for the two latter items see *ANTIQUITY*, 1936, x, 277-80); and probably the potter's wheel and the walling of towns with ramparts of *terre pisé*.

<sup>3</sup> See Notes by Col. Sir Henry Yule in *Journ. Anthropol. Institute of Great Britain and Ireland*, 1879-80, LX, 290 ff.

<sup>4</sup> A well-known example is the Japanese Sun-Goddess, regarded as the divine ancestress of the imperial line. Many other instances could be cited.

<sup>5</sup> See W. J. Perry, *The Megalithic Culture of Polynesia*, Manchester Univ. Press, 1918, chap. XI, 96-104, 'Incestuous Unions'.

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proper. Articles of dress are, among the men the perineal bandage or 'loincloth', among the women a kilt or *sarong*. Other traits of this complex are head-hunting, betel-chewing, tattooing, blackening of the teeth, the manufacture of bark-cloth, and the use of dugout canoes and pile-built granaries. In war and the chase the spear takes precedence over the bow and arrow, often to the practical exclusion of the latter. Also belonging to the above culture-group is that form of dwelling—in origin a communal village perhaps with matriarchal institutions<sup>6</sup>—usually known as a 'long-house'.

Typically, this is a very elongated but proportionately narrow structure of wood or bamboo, raised (often considerably) above the ground on piles, and with a gable roof. Examples have been noted which had a length of as much as 1200 feet, though the average is probably not half that figure. The width is commonly from 30 to 60 feet, the distance between the partitions separating individual chambers from 20 to 30 feet. The height from the ground to the floor of the house is 12 to 15 feet, sometimes more. From end to end of one side (the front), and accessible from below only by means of ladders, extends a continuous parapet or gallery with a hand-rail and covered by the projecting edge of the roof above. On this gallery opens a row of rooms, each the abode of one family. Or, less typically, two such rows of cubicles, both standing on piles at the same height, may confront each other from opposite sides of a long planked central corridor which takes the place of the exterior gallery just mentioned. The pile-studded but otherwise open space beneath the house serves for the dumping of refuse; the sheltering of domestic animals—dogs, swine, and fowls; and the storing of community or household impedimenta, such as canoes or fishing-nets. Peoples occupying such habitations commonly employ the *jhūm* system of cultivation,<sup>7</sup> which owing to the rapidity with which it exhausts the soil, necessitates the removal of villages to fresh sites every few years.

Houses of this general type exist even today over a wide area, from the southeastern borders of Tibet, through Farther India, Indo-China, and Indonesia, right down to the Solomons. Common in much of Assam, they occur likewise among the Kachins of Upper Burma.<sup>8</sup>

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<sup>6</sup> cf. Richard Thurnwald, *Economics in Primitive Societies*, Oxford, 1932, p. 26.

<sup>7</sup> See Charles Hose and William McDougall, *The Pagan Tribes of Borneo*, 2 vols., London, 1912; ref. to vol. I, pp. 100 ff.

<sup>8</sup> John Anderson, *Report of the Expedition to Western Yunnan via Bhamô*, Calcutta, 1871, p. 122.

## LONG-HOUSES AND DRAGON-BOATS

They seem also to have been used formerly by the Karens, among whom they are said still to survive in the Pegu hills.<sup>9</sup> They are found too all over the East Indian archipelago, notably in Borneo (except among the primitive Punans); the most substantial are probably those built by the Kayans, believed to be rather recent arrivals in the island.<sup>10</sup> That a similar form of communal pile-house once existed in parts of China and Japan appears highly probable, as we shall see.

In central and southern China, little archaeological work has yet been done. Hence for our present scanty knowledge of the pre-Chinese inhabitants of that region we must rely almost entirely on incidental notices scattered through the literary remains left us by the ancient Chinese proper (then pretty well confined to the Yellow River basin, in the north), and on a study of survivals of various kinds among the present-day populations of the above-mentioned area.

In the northern China of today the typical peasant's hut is rectangular in plan, with walls and roof of dried mud.<sup>11</sup> In the south, its walls are of split and plaited bamboo or a kind of 'wattle-and-daub', its roof of thatch. Everywhere the floor is regularly the bare earth. In late prehistoric times, on the loess-covered plains and hillsides of the northwest, habitations were excavated underground in the form of circular or elliptical pit-dwellings of 'beehive' shape, entered through an opening at the top.<sup>12</sup> In central and southern China—the Yangtse basin and the regions south of it—a widely different state of affairs prevailed. There, owing to the rugged and broken terrain, covered as it then was by almost impenetrable subtropical forest but traversed in all directions by watercourses, there came into existence a mode of life conditioned primarily on proximity to navigable streams. In these portions of China, pit-dwellings have not been found. On the contrary, habitations there seem to have taken the form of pile-houses, erected as a rule close to water though not actually in it. Of such structures examples exist even today, in the form of more or less modified survivals.

Thus in certain regions—as for instance along much of the middle

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<sup>9</sup> H. I. Marshall, 'The Karen People of Burma', *Ohio State Univ. Bulletin*, 29 April 1922, pp. 1-322; ref. to p. 56.

<sup>10</sup> Regarding the time, apparently only a few centuries ago, when the Kayans reached Borneo, see Hose and McDougall, *op. cit.*, II, 243.

<sup>11</sup> In northwestern China the peasantry often live in artificial caves excavated in loess bluffs. Whole villages of such 'houses' may be seen there.

<sup>12</sup> For pit-dwellings at Neolithic sites in northern China, see *ANTIQUITY*, 1933, VII, pp. 393 ff. The type occurs rather widely in the northern portions of both hemispheres.



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and upper Yangtse—river-banks are both lofty and steep. In such places the fronts of riverside houses often rest on the ground, at a level above the reach of floods ; while their rearward portions project backward toward the stream below, supported on piles whose height varies directly with the degree of slope of the bank.

Again, when the depth and flow of water are slight, as often near the margins of ponds and small lakes, the house may, as in the previous instance, have its front on the ground but its remaining portions built out over the water, in which stand the supporting piles (FIG. 1). I do not recall an instance of a Chinese pile-dwelling that stood entirely detached from the shore.

Pile-houses are said to occur also among the Miao aboriginal peoples of southern China ;<sup>13</sup> but details as to their form and location appear to be lacking.

With the possible exception of the last, however, the above examples display few features (apart from the mere fact of erection on piles) in common with the typical 'long-house' described above. For what looks like a direct descendant of the latter, we must turn to a type of structure very common in central, southern, and especially coastal China—just those regions that were latest in being absorbed (and then only imperfectly) into the Chinese culture-group proper of the early historical period.<sup>14</sup>

This form of house is regularly long and narrow, with a gable roof and two storeys, one above the other and each comprising a single row of rooms (FIG. 2). About half way up, at the level of the upper floor and extending the entire length of the house-front, is a narrow and slightly projecting veranda or gallery provided with a hand-rail and covered by the overhanging edge of the roof above ; on this veranda open the rooms of the upper tier (FIG. 3). At both ends of the house and sometimes inside the individual chambers also are steep flights of stairs.

Thus in principle this type of Chinese structure is identical, feature for feature, with the 'long-house' erected by the less advanced peoples to the west and south of China—save in one important particular. This single point of difference is that in the Chinese form the

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<sup>13</sup> S. R. Clarke, 'The Miao and Chungchia Tribes of Kueichow', *East of Asia Magazine*, 1904, III, 195.

<sup>14</sup> The type of house in question occurs sporadically in northern China also ; but there it seems to be a rather recent importation, quite distinct from the prevalent indigenous architecture.

## LONG-HOUSES AND DRAGON-BOATS

lower storey, instead of being merely an open space in which stand the posts or piles supporting the house proper above it, is enclosed by walls and divided by partitions. In this way the Chinese have obtained, at the ground level, a second row of chambers which corresponds in size and arrangement to the one above (the latter apparently representing the original house).

A building of identical type (though naturally differing in details and finish) occurs in Japan also, and is there called a *nagaya*—literally, 'long-house'. This too is provided with a long narrow veranda extending along its whole front, and is enclosed below as well as above, so as to have two tiers of rooms, a lower and an upper. Thus, like its Chinese counterpart, the *nagaya* displays all the essential features of the long communal pile-dwelling still found in Farther India, Indo-China, and Indonesia. That from the latter are derived both the Chinese and the Japanese forms seems likely from their plan of construction. This probability becomes a practical certainty when we find the peoples of both southern China and western Japan sharing, either now or formerly, in most of the culture-traits that elsewhere accompany this type of habitation.

What seems beyond doubt another and even less modified survival from a comparatively remote pre-Chinese past is the craft commonly called by foreigners the 'dragon-boat' (FIG. 4). This occurs in much the same parts of China as does the 'long-house' style of architecture just described, and it is used there in ceremonial boat-races.<sup>15</sup> It is essentially a long narrow canoe, shallow of draught, with low free-board, considerable tumble-home amidships, and much overhang at the ends, which are elevated sometimes as much as 5 or 6 feet above the water. At bow and stern respectively are the (detachable) head (FIG. 5) and tail of a dragon, carved in wood and brightly painted; from these, this type of craft derives its name.

This practice of attaching the carved head, and sometimes tail also, of a monster (most often, naturally, one associated with water) to craft of the dragon-boat type is, as we shall see later, very widespread. There are indications that it owes its origin to the belief that by so doing the canoes are magically transformed into the creatures which they represent. In line with the same primitive way of thinking

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<sup>15</sup> In northern China also, boats sometimes appear at the dragon-boat festival; but these are merely much-bedizened pleasure-barges, not racing-craft, and are quite different in both form and function from the true dragon-boats of the south.

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is the fact that even today at the building of a dragon-boat certain ceremonies are performed, offerings made, and incense burned.

Dragon-boats vary considerably in length, from about 40 to well over 100 feet. Two which I measured on the middle Yangtse were each around 55 feet long by about 5 feet beam; and neither could have drawn (empty) as much as a foot of water. The type has a round bottom and lacks both keel and ribs, the place of the latter being taken in part by transverse bulkheads spaced about 2 feet 6 inches apart (FIG. 6). Carvel-built, the planking is thin though the gunwale-strakes are very heavy (FIG. 7). The fastenings are iron straps and cramps and the entire construction is strong yet flexible and elastic. The hulls are not painted, but are rubbed smooth, oiled, and even waxed before races; I have been told that formerly they were often lacquered. In some instances they have a red cloth canopy amidships (the post of honour), under which sits the master of the craft.<sup>16</sup>

All the dragon-boats that I have seen have been steered by means of a single long sweep which rested in a semicircular notch in the upper edge of the aftermost bulkhead and entered the water through an oval opening (see FIG. 7) in the bottom planking near the stern; but I have been told that some of the longer specimens are guided by means of two such sweeps, one on either quarter.

Sails are not used. The motive power is supplied entirely by files of men who sit, or sometimes kneel, two abreast along the gunwales, between bulkheads, and ply short square-ended paddles with transverse hand-grips mortised on to their loom-ends.<sup>17</sup> Crews vary in size proportionately to the length of the boats, and range from 20 or 30 to upward of 100 men.

Capable of great speed, at least on a spurt, the dragon-boat is crank and is apt to 'hog' or even break in two in anything of a seaway. To guard against the latter danger, several turns of a braided (not twisted) bamboo hawser are taken about the gunwales and under the overhang at bow and stern (see FIG. 6). I also saw in one instance a true 'hogging-truss' which ran fore-and-aft in the median line of the boat, along the tops of the bulkheads.<sup>18</sup>

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<sup>16</sup> Verbal communication from Dr N. Gist Gee. In predynastic Egyptian representations of what are usually taken for boats, there often appears a canopy or cabin of some kind amidships.

<sup>17</sup> The dragon-boat paddles that I have measured have all been about 3 feet long.

<sup>18</sup> The use of a hogging-truss is apparently very old; it is represented, for example, as a fixed feature of the ships sent by Queen Hatshepsut to the land of Punt, as seen at Deir el-Bahri.



## LONG-HOUSES AND DRAGON-BOATS

The Dragon-boat Festival falls on the 5th of the 5th moon of the old Chinese calendar,<sup>19</sup> and thus occurs during the early summer. Aetiological myths explaining the ceremony appear in slightly variant forms according to the locality. They all agree however in ascribing its origin to popular distress over the fate of some upright statesman who was unjustly disgraced and who thereupon committed suicide by throwing himself into the water. The people, the tale goes on to say, instituted a search for his body, and the custom has been kept up ever since, in commemoration.<sup>20</sup>

In reality the rite appears to be one of rain-making in connexion with agriculture, and is pretty certainly of pre-Chinese origin. Not improbably it once centred about a human sacrifice by drowning, and embodied the very widespread notion of a 'dying god' and the return of the growing season.

Into the manner of celebrating the festival we need not enter, for it has often been described in detail.<sup>21</sup> Our object here is merely to point out the ritualistic survival in parts of China of a type of craft existing, now or recently, over a wide area of southeastern Asia and the adjacent insular regions. Employed in China today only in the celebration of the Dragon-boat Festival, as lately as three or four generations ago it had there a considerably less restricted range of uses.

Thus the pirates, smugglers, and water-police of southern Chinese coastal regions utilized boats of this type until well on in the 19th century. The imperialist forces during their operations against the Taiping rebels, in 'Chinese' Gordon's time, also employed such craft, not inaptly dubbed 'centipedes' by the British tars who saw them urged into action.

As just intimated, this form of boat was by no means confined to Chinese waters. In Chinese accounts of the 3rd century A.D. we find mention of similar craft as coming from Fu-nan (roughly Cambodia and Cochin-China). These, we are told, were from 70 to 80 feet long by 6 feet beam,<sup>22</sup> and had a carved fish's head and tail at bow and stern ;

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<sup>19</sup> Now abolished officially, though not in popular usage ; in it the year began on the first new moon after the sun's exit from Capricorn, the last of the three winter signs.

<sup>20</sup> It is scarcely necessary to point out the resemblance to the search for the remains of Osiris, as recounted by Plutarch.

<sup>21</sup> See J. J. M. de Groot, *Les Fêtes annuellement célébrées à Emoui*, Paris, 1886 ; Lewis Hodous, 'The Great Summer Festival of China as observed in Foochow', in *Journ. North-China Br., R.A.S.*, 1912, XLIII, 69-80.

<sup>22</sup> Note the similarity in proportions to those of the dragon-boats that I measured on the Middle Yangtse.

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they were propelled by means of paddles (there is no mention of sails)<sup>23</sup> and carried crews of about 100 men. This statement is of interest as showing that early in our era fleets of such great canoes were venturing on long voyages which beyond doubt involved the passage of considerable expanses of open sea. We shall discuss later on the probability that such voyages were taking place centuries earlier still.

Boats of a similar sort are mentioned as being used in Cambodia during the 5th century A.D. In them too, says the Chinese account, the place of honour is amidships ; it further states that the paddlers are protected from missiles by plaited work of rattan raised along the gunwales.

European visitors to Siam, from the early Portuguese onward, speak of such craft, hollowed from a single tree-trunk and with ends much elevated ; their freeboards are said to be increased by stitching planks along the gunwales. These gigantic dugouts are stated often to be well over 100 feet in length, with crews of as many as 150 men. The Siamese royal barge, of similar construction (FIG. 8), is described as 150 feet long by 11 feet beam, with a gilt pavilion amidships, the place of honour.<sup>24</sup>

From Annam, Cambodia, and Laos we hear of craft of this type, decorated inside with red lacquer and outside in black and gold. In Arakan likewise, we find mention of long dugout canoes having at the bow the carved head of a crocodile—a feature recalling somewhat the dragons' heads of the Chinese craft already described, and even more the figureheads borne by the Bornean war-canoes which we shall discuss in a moment. Elsewhere in Burma also, similar craft were used. We hear there of long war-boats, hollowed from a single great teak log, with built-up sides, monster figureheads, and sometimes—at least in the later periods—propelled by rowing, not paddling ; oars as well as hulls were occasionally gilded. Simes in the year 1800 mentions such boats as being from 80 to 100 feet long but rarely of over 8 feet beam.<sup>25</sup> In their crews the British forces employed in the First Burmese War found their stoutest opponents.

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<sup>23</sup> The first mention in the Chinese records of sailing-craft—and then apparently not of Chinese but of Western origin—refers to the 3rd century A.D. Sails seem not to have been much used in Japan until about the 9th century A.D.

<sup>24</sup> Sir John Bowring, *The Kingdom and People of Siam*, 2 vols., London, 1857 ; ref. to vol. I, pp. 116 ff.

<sup>25</sup> For an excellent description of these Burmese war-boats see Col. Sir Henry Yule, *Narrative of the Mission . . . to the Court of Ava in 1855*, Calcutta, 1857, p. 488.

## LONG-HOUSES AND DRAGON-BOATS

Turning now to the island groups off the coast of the Asiatic continent, we find this type of craft quite generally represented down to fairly recent or even modern times. Traces occur of its former presence in Japan, as for example in the 'many handed' boat of Kumano, now used only ritually.<sup>26</sup> Though during later periods Japanese craft have regularly employed sails and long sculls for propulsion, paddles have survived there, especially in ritual connexions. The great war-galleys of feudal Japan, though decked and using banks of sculls in place of paddles, seem to have developed out of an earlier form like the Burmese war-boats mentioned above. This evolution may however have taken place in China and been carried to Japan only later. For statements in the Chinese records indicate pretty clearly that decked craft of some sort were being used in that country as far back as the latter part of the 1st millennium B.C.,<sup>27</sup> when certainly nothing of the kind was yet known in the Japanese islands.

The natives of the Loochoo archipelago—that long crescentic chain of islets extending southwestwardly from Japan proper nearly to Formosa—employed for ritual purposes until quite recently long dug-out canoes with dragons' heads and tails at bow and stern and propelled by means of paddles.<sup>28</sup>

Throughout Indonesia also, we find the same type of craft in use. This applies especially to Borneo, where nearly every village has at least one long war-canoe, hollowed out of a single log and communally owned. Here too, the freeboard is increased by lashing planks edgewise with rattan to the gunwales. Amidships is an arched shelter of palm-leaves, for chiefs and men of distinction, and the bows usually terminate in conventionalized wooden heads of crocodiles or dogs, painted in black and red.

These Bornean war-canoes vary in length, from 70 or 80 to well over 100 feet, with a beam of 6 or 7 feet. They are propelled by means

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<sup>26</sup> On this see W. G. Aston (tsl.), *Nihongi: Chronicles of Japan from the earliest Times to A.D. 697*, 2 vols., London, 1924; ref. to vol. I, p. 68.

<sup>27</sup> For example, a Chinese fleet of the late 2nd century B.C. is recorded as having transported an army of 50,000 men across the one hundred miles and more of open sea between peninsular Shantung and the opposite coast of Korea; but this seems to have been composed not of vessels of the dragon-boat type but of more developed form, with decks. There is nothing however to suggest that they had sails.

<sup>28</sup> W. H. Furness, 'Life in the Luchu Islands', *Bull. Mus. Science and Art*, Univ. Pennsylvania, 1899, II, 15.



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of paddles about 3 feet long,<sup>29</sup> wielded by crews numbering 60 to 70 men or even more. The paddlers line the gunwales two abreast, the two foremost and the four aftermost being responsible for the steering. This latter arrangement has a more primitive look than that found in the Chinese dragon-boats, with their specialized steering-oars in the form of long sweeps.

Bornean war-canoes are fairly seaworthy, and in calm weather may venture many miles out to sea. It must have been in some such craft, indeed, that the Kayans, for example, reached the island in the first place (see footnote 10, page 413).

Wherever this type of craft occurs—from Farther India eastward to Japan, from central China southward to Indonesia—we find it employed, in recent or ancient times, mainly for the waging of war afloat. Hand-in-hand with this use, however, has gone a ritual one, primarily the magical control of the seasons and the securing of bountiful crops by means of canoe-races. This latter function has tended to outlast the former—an excellent illustration of the power of religious conservatism.

This practice of ritual canoe-racing has been very widespread. Thus Diogo da Couto (*ob.* 1616) mentions a Siamese fête resembling in many ways the Chinese dragon-boat festival. In Burma, races of war-boats were held before the king, who was present apparently in his sacred capacity. Accounts of similar ceremonies reach us from Manipur (where also the king presided); from Laos, Cambodia, and Annam; from Java, Japan, and the Loochoo Islands.

In most places where we find great canoes of the above type, they are dugouts, hollowed from a single log. Now as already stated, those portions of China in which we find the dragon-boat are very nearly those where the 'long-house' style of architecture is most common; that is, they are precisely the regions latest to become assimilated (and that only partially) by the expanding Chinese culture-group pressing down from the north. Naturally earlier, because of its geographical position, than the areas to the south of it to undergo this process was the lower Yangtse basin, including what was anciently called the district of Yang.<sup>30</sup> That venerable Chinese book the *Yü Kung*, believed

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<sup>29</sup> Note the similarly short paddles of the Chinese dragon-boats (see footnote 17, page 416). American Indian canoe-paddles that I have seen have usually been about 5 feet long.

<sup>30</sup> The river-name 'Yangtse' does not mean 'Son of the Ocean', as sometimes stated, but derives from the ancient region of Yang. The two 'Yangs', the one meaning 'ocean' and the other referring to the territory, though spoken in the same tone, are written with quite different characters.

## LONG-HOUSES AND DRAGON-BOATS

to date from well back in the 1st millennium B.C., states that Yang is notable for its luxuriant vegetation and great trees. The latter were also plentiful in ancient times throughout central and southern China generally. From the logs which they provided, undoubtedly, were hollowed the ancestral forms of the present-day Chinese dragon-boats, whose lines (though not their method of construction) so closely resemble those of their more primitive congeners in neighbouring lands.

Among the most striking phenomena of ancient Chinese social and political development was the way in which large organized states arose along the Yangtse River, successively downward from its upper waters to the sea.<sup>31</sup> This movement seems already to have been well under way by the close of the 2nd millennium B.C., and to have continued for several centuries thereafter. It was apparently made possible in part by an organization, with bronze weapons, superior to anything that the Neolithic aborigines possessed; and in part by the extension of rice-culture, with its attendant increase in population and the acquisition of a way of accumulating reserve capital.<sup>32</sup>

This movement of state-building along the Yangtse ended with the founding of the two kingdoms of Wu and Yüeh—roughly the modern provinces of Kiangsu and Chekiang. Both were in the former delta region of the great river (now reduced to a single mouth); and both formed part of the area where today we find the Chinese long-house and dragon-boat. These two states seem to have owed their origin, early in the first millennium B.C. or thereabout, to the advent of bronze-using invaders from more civilized lands higher upstream.<sup>33</sup> These newcomers appear to have established themselves as a ruling class among a population whose closest modern analogues we must seek in the peoples of Indo-China, Farther India, and parts of Indonesia.

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<sup>31</sup> In *Pacific Affairs*, vol. VII (Sept. 1934), pp. 297-325, 'Beginnings of North and South in China', I have attempted to recount some of the circumstances attending this interesting historical process.

<sup>32</sup> In Japan, for example, until within living memory, official incomes were reckoned in terms of bags of rice.

There is considerable evidence, historical, traditional, and legendary, that the diffusion of rice-culture over many parts of the Far East has been relatively recent. It seems to have occurred mainly between 1000 B.C. and A.D. 1000, though beginning even before the earlier date.

<sup>33</sup> The legends on which this assumption is in part based are as a rule lightly dismissed as fables; but certain of their details seem to indicate that they contain a kernel of fact.

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Old Chinese records tell us that the people of Wu and Yüeh (in common, apparently, with most of the pre-Chinese inhabitants of eastern and southern China), tattooed themselves, wore their hair short,<sup>34</sup> and had few if any domestic animals other than dogs, swine, and fowls. They made little or no use of the bow,<sup>35</sup> and were ignorant of land warfare (at least of the kind practised by the ancient Chinese proper, who placed their main reliance on their chariotry).<sup>36</sup> They were, on the other hand, accomplished canoemen, thoroughly at home on the water. The wars that they constantly waged, against each other and against the more properly Chinese states to the west and north of them, were fought largely in fleets of canoes almost certainly similar in type to the war-boats later used by such peoples as the Burmese, the Siamese, and the Chinese themselves. In both Wu and Yüeh, moreover, certain boats were regarded as in some sense sacred and endowed with magical power; these appear to have been palladia of state, whose capture by the enemy was something to be avoided at any cost (FIG. 9).

It is interesting to note, as indicative of the essentially aquatic character of these ancient 'thalassocracies' of the lower Yangtse,<sup>37</sup> that it was a king of Wu who, to provide a waterway whereby his fleets might invade northeastern China, dug about 485 B.C. the oldest section of the Grand Canal—that part of it connecting the Yangtse and the Huai rivers; an undertaking incomparably greater in magnitude than the almost exactly contemporary cutting of the isthmus at Mount Athos by Xerxes.

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<sup>34</sup> The ancient Chinese proper, of the Yellow River basin, wore their hair long and knotted in a sort of *chignon* on top of the head, as did the Koreans until quite recently. The queue or 'pigtail', often regarded as so peculiarly Chinese, was in reality only adopted by that people around the middle of the 17th century, under compulsion from their Manchu conquerors.

<sup>35</sup> Similarly, in large areas of Indonesia and Polynesia the bow was practically unused, though known. In regard to Borneo, see Hose and McDougall, *op. cit.*, I, 46.

<sup>36</sup> The military power of the various Chinese feudal states during their later Bronze Age (*i.e.*, for the greater part of the 1st millennium B.C.) was computed in terms of the number of war-chariots that they could put in the field. There was little regard for infantry, composed largely of untrained levies of serfs; and cavalry as an effective fighting force only began to appear toward the close of the period.

<sup>37</sup> Owing to the great changes which have occurred during the historical period in the hydrography of the region, what was once the territory of Yüeh no longer reaches the Yangtse; but anciently the latter's delta touched its confines, and old records could thus speak of the two states, Wu and Yüeh, as 'situated on the same river'.



## LONG-HOUSES AND DRAGON-BOATS

This riparian and maritime pre-Chinese culture, with its focus apparently in eastern and southern China, spread at an early date over the coasts of the China seas—to Indo-China on the one hand, on the other to peninsular Shantung, southern Korea, western Japan, the Loochoo Islands, and probably Formosa ; later, to Indonesia also.<sup>38</sup> In the absence of sails, the cruising radius of the fleets that carried it must have been limited—its diffusion consequently slow. The lack of effective means of carrying a sufficient supply of drinking-water on board must also have been a hindrance.<sup>39</sup> Nevertheless it is becoming increasingly evident that considerably more navigation, overseas as



FIG. 9. MAGIC (?) CRAFT OF DRAGON-BOAT TYPE DEPICTED ON AN  
ANCIENT BRONZE DRUM, ANNAM

*After Goloubew*

well as coastwise, was going on before the appearance of the sail than is often supposed.

This diffusion of what is coming to be called the 'Yüeh' culture seems to have begun even before the knowledge of metals reached that part of the world, probably some time in the first half of the first millennium B.C. That it belonged to the complex described early in this paper is quite clear. One of its features was the prominent part assumed by goddesses and women in religious and other activities. Thus one of the oldest Chinese names for western Japan was 'the queen country'. Throughout the area occur legends of maiden sacrifice by

<sup>38</sup> It is perhaps worth noting, as an interesting modern survival of the essentially aquatic character of the old 'Yüeh' culture, that the Chinese stewards serving on so many of the passenger liners traversing the Seven Seas are almost without exception 'Ningpo boys'; and that Ningpo itself is situated within a few miles of the site of the ancient capital of Yüeh.

<sup>39</sup> Cooperage was unknown in China until much later. Even today, rice-wine is kept in large and heavy earthenware jars covered with closely woven basketwork.

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exposure which recall in many ways the tale of Andromeda. The dog-progenitor myth is common still among the aboriginal tribes inhabiting the mountains of southeastern China. Ceremonial re-interment of the bones of the dead is a widespread practice, extending from the Nicobars to the Loochoos, from Farther India to Indonesia. Tattooing is still customary in the regions about the southern segment of China's periphery, and old Chinese records ascribe it to the peoples of Wu and Yüeh. In many areas (though apparently nowhere among the Chinese themselves) the loin-cloth and the *sarong* are yet worn. The *jhūm* system of agriculture is still in vogue in lands, both continental and insular, adjacent to China ; while that it was once practised in the latter country also is quite certain.<sup>40</sup> Numerous other parallels between the ancient Yüeh culture and those still found in so many parts of Indo-China and Indonesia could easily be enumerated.

Thus the culture-complex of which the long-house and the dragon-boat are surviving (though modified) features not only diffused itself widely over the Far East ; but it also contributed an important ingredient to the formation of the historical civilization of China herself.

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<sup>40</sup> Thus in the summer of 1924, the Freer Gallery's archaeological expedition unearthed abundant evidence, in the form of fire-reddened soil, charcoal, ashes, and stone adzes, of the former practice of *jhūm* cultivation in eastern China.

## PLATE I



FIG. 1. PILE-HOUSES AT ICHANG, JUST BELOW THE YANGTZE GORGES. (See p. 414)  
In background (left) is visible a portion of a Chinese 'long-house'



FIG. 2. CHINESE 'LONG-HOUSE' IN PROCESS OF CONSTRUCTION  
AT HANGCHOW NEAR SHANGHAI. (See p. 414)



PLATE II



FIG. 3. CHINESE 'LONG-HOUSE' AT ICHANG. (See p. 414)  
Note the narrow verandah extending along the entire front of the building



FIG. 4. CHINESE DRAGON-BOAT, YANGTZE RIVER. (See p. 415)  
*From a photograph*

# PLATE III

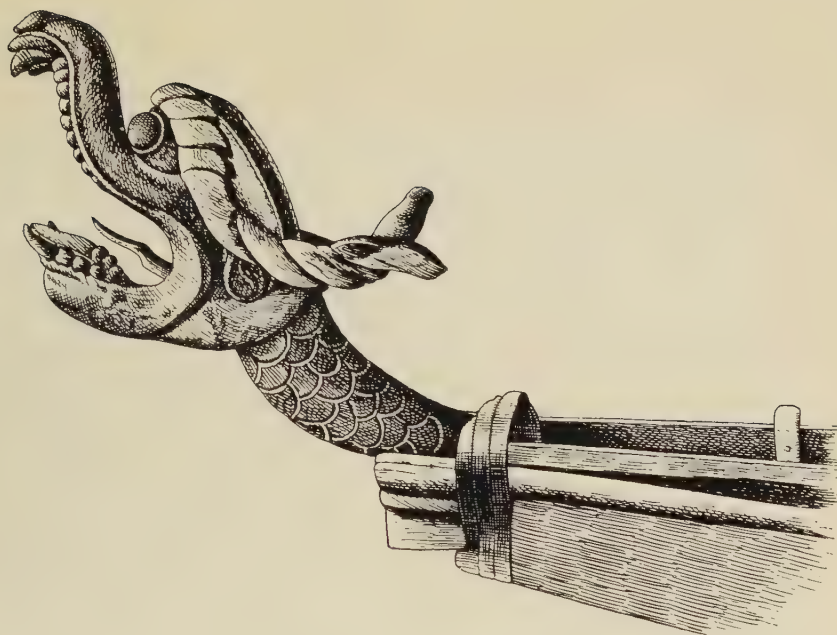


FIG. 5. ENLARGEMENT OF THE CARVED DRAGON'S HEAD SEEN IN FIG. 4. (See p. 415)

## DRAGON BOAT Ichang, Hupeh

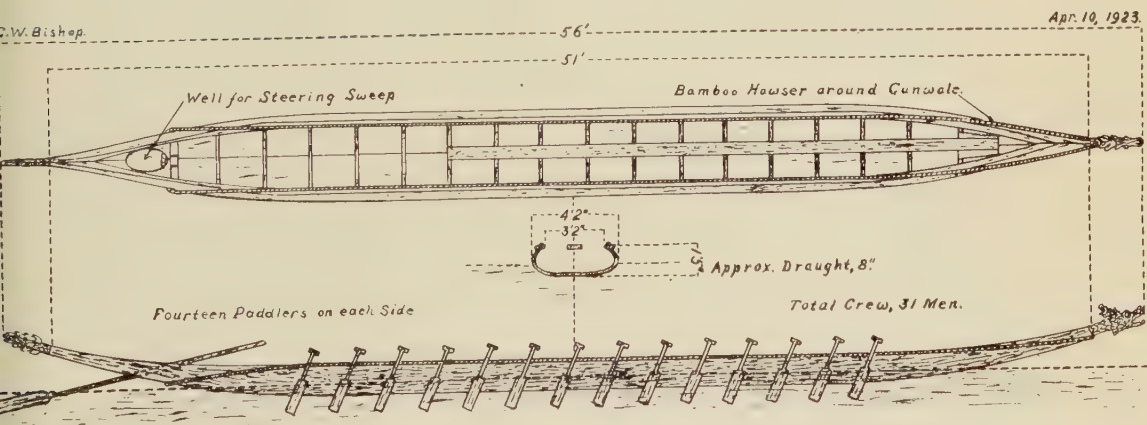


FIG. 6. 'DECK' AND SHEER PLANS OF DRAGON-BOAT, TAKEN FROM ONE AT ICHANG. (See p. 416)

# PLATE IV



FIG. 7. DRAGON-BOAT UNDER SHED AT ICHANG. (See p. 416)

Note the elevated ends, heavy gunwale-strakes, and oval opening in bottom near stern, for steering-sweep  
Tail, but not head, in place



FIG. 8. SIAMESE ROYAL BARGE (See p. 418)

*From a photograph*



# The City Nuzu

by SIDNEY SMITH

1. NUZI AND THE HURRIANS: the excavations at Nuzi (Kirkuk, Iraq) and their contribution to our knowledge of the history of the Hurrians. By Robert H. Pfeiffer. (From the Smithsonian Report for 1935, pp. 535-538).

2. ONE HUNDRED NEW SELECTED NUZI TEXTS. Transliterated by Robert H. Pfeiffer. With translation and commentary by E. A. Speiser. (Annual of the American Schools of Oriental Research, vol. xvi. New Haven, 1936).

3. NUZI: report on the excavations at Yorgan Tepe near Kirkuk, Iraq. By R. F. S. Starr. Volume II. Plates and plans. Cambridge, Mass., 1937.

4. NOTES ON HURRIAN PHONOLOGY. By E. A. Speiser. (Journal of the American Oriental Society, vol. 58, no. 1, pp. 173-201).

IN 1924 inscribed clay tablets were sent to Baghdad from Kirkuk, which drew attention to two sites in a region where little archaeological work had been done, one in the town of Kirkuk itself, and one at the deserted mound called Yorgan Tepe, some fourteen miles to the southwest. Miss Gertrude Bell, then Director of Antiquities, entrusted these tablets to Mr C. J. Gadd of the British Museum, for decipherment, and Dr William Corner, the Civil Surgeon at Kirkuk, who had interested himself in the discovery, collected much important information in the locality which made it possible to identify the site at Kirkuk as part of the ancient city of Arrapha, the capital of the province known to the Hellenistic world as *Ἀρράπαχίτις*, and Yorgan Tepe as the previously unknown (*al*)*Nuzi*, a name almost always found in the indirect case. The nominative of the latter in Akkadian should be Nuzu, and this form ought perhaps to be used rather than the generally accepted Nuzi. But the name is not Akkadian, it is parallel to Kakzu further north; so the case-endings do not in any case belong to the native name. Where the name does appear in the nominative, it is always possible to doubt whether the writing is purely phonetic, or should be regarded as an ideogram, 'the unknown', and only the context provides a means of decision.

Miss Bell very properly wished that this site should be excavated, and in the winter of 1924 the energetic Annual Professor of the American School at Baghdad, the late Edward Chiera, was able to start work with

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funds provided jointly by the American School and the Iraq Government, a most praiseworthy joint enterprise of a type all too rare. After a short time the Iraq Government ceased to support the dig, and funds were derived from American institutions, Harvard and the Fogg Museum. The leadership of the expedition changed rather frequently, owing to the constitution of the American School ; but work was carried on every season till 1930-31.

Not very much has yet been published about these excavations, as will be seen from the excellent bibliography in Professor Pfeiffer's account (no. 1), which is complete up to the time he wrote. It is regrettable that such good and fairly full annual reports as were published by the excavators at Ur, Uruk, Nineveh, Eshnunna and elsewhere, are not available. A volume of the final report has appeared (no. 3), but it is the second volume of the whole, and contains only plates. Archaeologists are bound to use this material, especially certain pottery and a class of seals belonging to the fifteenth century, because it is of vital interest for work now going on in Syria ; the publication of the plates before the explanatory text may, indeed must, give rise to much unnecessary speculation, and it is to be hoped the text-volume may speedily appear.

As far as our present information goes, the history of the site falls into two main periods, about 2500 B.C. and about 1500-1400 B.C. ; these datings are derived from clay tablets, the earlier set belonging quite certainly to the time of the Agade dynasty, and the later to the time of Saushshatar, king of Mitanni. The uppermost level belongs to the early centuries A.D., while test-pits have resulted in some finds of prehistoric seals and pottery, which are reinforced by work on a neighbouring mound. The main interest of the excavations necessarily lies in the two historic periods. Mr Starr, in the very brief foreword to the volume of plates, speaks of 'mixed types' representing the transition from the Akkadian to the later period, which seems to indicate a belief in the continuous inhabitation of the city. An odd tablet or two may be adduced in support of this view, of the style known as 'Cappadocian', belonging to a date about 2000 B.C. ; but there is very little indeed to show what filled this gulf of 1000 years. In this respect the site, as excavated, is a great disappointment, for there seemed every hope that the three dark centuries, 1800-1500, might be illuminated at Nuzu.

Of the Akkadian period there is not much to say. In the documents a purely Akkadian population appears, and the objects found

## THE CITY NUZU

do not differ in nature from similar material found at sites in Assyria and in southern Babylonia. The city itself in the documents is called GA-SUR ; it is by no means absolutely certain how the signs thus conventionally transliterated were actually read, but clearly the name is not that which appears later, Nuzu. Whether this means that Nuzu was a name given by an invading people, the Khurri, as Professor Speiser believes, after the Akkadian period, is by no means certain. Ungnad, in his book *Subartu*, has pointed out that other towns have two names, and that the Akkadian documents are due to the exclusive needs of the ruling class ; he considers that the population was never homogeneous, and that a 'Subaraean' element was always present. However this may be, it is quite clear that some great change took place in the districts east of Tigris before 1500, and we see some of the results at Nuzu.

The plans of buildings, without explanation, are not enlightening. This fifteenth-century city was a huddled mass of houses, with narrow streets on no particular plan ; and the larger buildings, sometimes of very considerable extent, are hardly designed, but are just congeries of rooms fitted in anyhow. It is extremely difficult, until the excavators' account is published, to be sure why the terms 'temple' and 'palace' are employed. Anyone who walked over these ruins while the excavation was in progress may well have been confused ; but the plans are not less so. Nuzu was not a royal city. It had an administrative centre ; whether that be properly described as a palace now, or not, it may well have been called *egallu*. But the important thing to note is that it bears the marks rather of a communal building than of one devoted to the needs of the governor.

More instructive than the buildings is the appearance among the pottery, especially on the tall goblet shape which was widely spread over Mesopotamia, of a type of decoration not found in any of the many previous types of painted ware, namely, designs carried out in white paint, or reserved in the cream ground, on a black. Not a great number of examples were found, but they were immediately recognized by those who had seen the results of excavations at the city of Ashur which are, most regrettably, still unpublished. Recently, Mr M. E. L. Mallowan has found similar pottery at Brak, near the Khabur river in the Mitanni country, and Sir Leonard Woolley at Atchana, on the 'Amq plain east of Antioch. The decoration includes formal elements common in Assyria during many distinguishable periods, such as the rosette and palmette, but the four-square spiral and other patterns



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were formerly considered peculiar to the Aegean area. In the case of Atchana, in addition to examples in the formal style, there is a luxuriant style not yet exemplified at Nuzu, Ashur or Brak. The American excavators have dubbed this pottery 'Khurrian' because there was a preponderance of personal names at Nuzu demonstrably connected with the language in which Dushratta of Mitanni wrote to Amenophis IV of Egypt, a language which the Hittites, as is known from the Boghazkeui tablets, called 'Khurrian'. There is, however, a very real chronological difficulty. As Ungnad has pointed out in *Subartu* (de Gruyter, Berlin, 1936) it can be shown that Khurrian personal names occur in the Babylonian eastern provinces as early as the First Dynasty of Babylon, *i.e.*, the twentieth century B.C., and even earlier, under the Third Dynasty of Ur. Ungnad therefore calls these names 'Subaraean' in accordance with the geographical term Subartu, which goes back to the Agade period, 25th-24th centuries B.C. Whether the name 'Subaraean' be accepted or not—certain authorities<sup>1</sup> have criticized it—the chronological fact is that the pottery always seems to be fifteenth century, or thereabouts, whereas the 'Khurrian' personal names occur much earlier. It is, I think, desirable to avoid any racial nomenclature for pottery, especially in this case. The 'Khurrians' are at present vaguely known to us from linguistic evidence. The pots are found in those cities which were subject to, and ruled over by vassals of, Saushshatar, king of Mitanni, between 1500 B.C. and 1450 B.C. In this matter the remarks of F. A. Claude-Schaeffer<sup>2</sup> are pertinent. At Ras Shamra, where there is linguistic evidence for a population speaking a 'Khurrian' dialect, there is no pottery of the Nuzu-Ashur-Brak-Atchana type. The explanation may possibly be that Ugarit (Ras Shamra) was not directly tributary to Mitanni.

The seals found are instructive and form a class now fairly recognizable, and they are dated by these excavations to within a century. The styles of cutting vary; the material is usually haematite, the themes are numerous, some being derived from the old Akkadian cycle, some belonging to the so-called 'Syro-Hittite' style and some presaging later Assyrian themes. The interesting point to notice, for the history of culture, is that while for instance the seal of Saushshatar, king of Mitanni, who for a time ruled Nuzu, bears the scene of the hero with

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<sup>1</sup> Such as Friedrich, in *Zeitschrift der Morgenländischen Gesellschaft*, Band 91, pp. 204-14, and A. Götze, *Journal of the American Oriental Society*, vol. 57, pp. 104-9.

<sup>2</sup> *Syria*, 1938, pp. 35-36.

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crossed animals familiar in the early Sumerian and Agade periods, that theme is never used, to our knowledge, in the Kassite period of rule at Babylon. The significance of these themes on seals has been treated by A. Moortgat,<sup>3</sup> but I am by no means convinced that his argument explains the phenomena. The seals were, I think, invariably made by members of a guild, who supplied the subjects ordered. Why the kings of Mitanni, and later the nobles of Assyria and of the Persian Empire favoured subjects derived from very early prototypes requires investigation, I suspect, not on aesthetic, but on heraldic, lines.

We must turn from the archaeological publication, without dealing with some interesting terracottas and bronzes, after once again expressing the hope that a satisfactory account of the excavations may be published very soon, to the texts of the fifteenth century. Of these, the translations in *One Hundred New Selected Nuzu Texts* (no. 2) give a good general synopsis, which can at need be filled out by reference to Pfeiffer's bibliography and Speiser's notes. The documents are written in cuneiform signs of a *ductus* more closely resembling the Assyrian than the Babylonian. The language employed is Babylonian, but often the orthography, that is, the way the syllabic signs are handled, is un-Babylonian; there is a confusion between *fortes* and *lenes* common in the northern areas, and constructions unusual elsewhere, or ungrammatical, are employed. The reason for these local peculiarities has been found, not unreasonably, in the fact that the main portion of the population spoke the language called by the Hittites 'Khurrian'. A bold effort has been made, on this basis, to discern some of the phonetic and grammatical peculiarities of 'Khurrian'; Speiser's 'Notes on Khurrian Phonology' (no. 4) is not only a useful account of the material available and of the course of previous discussion, but contains some criticism of methods employed. I am inclined to be even more sceptical than Professor Speiser about any arguments as to sound derived from writing of any kind, and am unable to see that the existence of some 'Khurrian' words in the alphabetic writing of Ras Shamra assists very much. The signs of that alphabet are symbols: they cannot be supposed to render all the sounds of the language, or, in any one case, always the same sound. As to the grammar, we may be able to explain certain oddities in the Akkadian of Nuzu when we know something more of Khurrian, but not *vice versa*. It would be impossible to say anything about Gaelic if we only had renderings of a

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<sup>3</sup> *Die bildende Kunst des alten Orients und die Bergvölker.*

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Highlander's English, though it is easy to explain the oddities of that English from Gaelic.

The important feature of the tablets is that they introduce us to a social organization and to forms of law not known in Babylonia and Assyria. Thus the tenure of land was subject to restrictions on sale which led to a fictitious form of adoption. With the inheritance of real property went the inheritance of household gods, a nomad custom. Some officials are given titles that belong to the Khurrian language, a noteworthy feature, for in other provinces the exclusive use of Babylonian or Assyrian nomenclature is usual; the use of such titles points, I think, to an organization not originally developed in city states, and not comparable to Babylonian administration. For a discussion of features of the law practised the reader should consult P. Koschaker,<sup>4</sup> where he will find some interesting examples of the growth of law by the adoption of like forms for disparate procedures, in accordance with Maine's hypothesis.

The hundred texts chosen by Professors Pfeiffer and Speiser are divided into four sections. The first deals with a series of complaints brought against a mayor of the town named Kushshi-kharbe, a name which is probably Kassite, as Speiser points out. The counts on which he is indicted in various cases are perversion of public labour to private work, acceptance of bribes, threats of violence, and collection of ransom from victims. No such record exists in cuneiform literature of the prosecution of an official, and the documents are interesting because they show the nature of the court before which the various statements are made; it is a court empowered only to draw up a *procès-verbal*, without any power of decision. The second section is concerned with the dealings of a woman called Tulpunnaya, a very typical lot which includes examples of nearly every type of document found at Nuzu. The third section consists of lists of oil rations set apart for various deities, of importance because of the names of the gods and the localities mentioned. In the last section miscellaneous texts illustrating important points for study are included. The two editors have laid all students under a debt, for the work has been most carefully done. Professor Speiser's commentary is frequently brilliant, always enlightening. Special mention should be made of his argument that *kinahhi*, 'Canaanite', as applied to wool, means 'red purple'; it was

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<sup>4</sup> *Neue keilschriftliche Rechtsurkunden aus der El-Amarna Zeit* (Leipzig; Abhandlungen d. Phil.-hist. Kl. der sächsischen Akademie der Wissenschaften, xxxix, no. 5).



## THE CITY NUZU

presumably derived from the name of the land of Canaan, and in turn the meaning led to the Greek name 'Phoenicia'.

No one interested in recent developments in Syrian archaeology can neglect the publications dealing with Nuzu. The problem presented is a very complex one, but of great interest, which may be thus stated. Nuzu is the easternmost example of a material civilization in the 15th century B.C., which, while based on and closely akin to Babylonian, is sharply differentiated from contemporary Babylon. Where this civilization occurs there is generally proof that a proportion of the population bore Khurrian personal names. But sometimes the Khurrian language occurs in places where the distinctive material objects are not found. And the distribution of the Khurrian names is found much earlier than the material civilization. At present no adequate explanation can be put forward with full reasoning; for that we must await reports from Sir Leonard Woolley, Mr Mallowan, and the much longer delayed accounts of the excavators of Ashur and Nuzu.

### ADDENDUM

An interesting contribution to our knowledge of ancient calendars has just been made by Drs. Cyrus H. Gordon and E. R. Lacheman, 'The Nuzu Menology', in *Archive Orientalni*, 1938, vol. 10, nos. 1-2, pp. 51-64. The writers prove that two calendars were used side by side, one of Khurrian, one of Semitic origin, and that the latter was not of Babylonian origin.

Readers who desire general information on the Khurri should consult A. Götze, *Hethiter, Churriter und Assyrer* (Oslo, 1936) or G. Contenau, *La Civilisation des Hittites et des Mitanniens* (Paris, 1934).

## Hertfordshire Place-names\*

by O. G. S. CRAWFORD

IF one were asked to indicate the best contemporary products of English research in the field of historical studies, using the term 'historical' to include also archaeology, one would certainly put the publications of the English Place-name Society near the top of the list. It is characteristic of English methods that so much of our best work in these subjects should be subsidized by voluntary contributions; for though the EPNS receives a small annual grant from the British Academy, the greater part of its work is unpaid, and the most expensive item, the annual volume, is entirely paid for by the subscribers. One can think of half a dozen other comparable undertakings, all organized on a voluntary basis. This state of affairs cannot logically, however, be used as an argument against the State endowment of research (though it sometimes is so used), because it cannot be proved that, if thus endowed, work of this kind would be done less well. Indeed, to those who know the individuals responsible, the mere suggestion is fantastic and absurd. One has only to refer to the Reports of the Royal Commissions on Ancient Monuments (particularly those for England) which are wholly subsidized by the State, to see that the work of government officials is not necessarily or always bad; and other instances may occur to our readers.

One of the great advantages of the voluntary system is that it ensures regular and punctual publication. Every year subscribers receive a volume on the place-names of an English county; and there is evident a tendency to improve and expand, though the standard set by the earlier volumes was itself a very high one. The fuller treatment of field-names is one of these welcome recent improvements; so are the little sketch-maps showing the distribution of certain common elements such as *-ingas*, *-ham(m)*, *-tun*, etc. It is, to the reviewer, a standing wonder that so much detail should be marshalled in almost

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\* The Place-names of Hertfordshire, by J. E. B. GOVER, ALLEN MAWER, and F. M. STENTON. English Place-name Society, vol xv, 1938. Cambridge University Press, 18s.



DIAGRAM INDICATING THE PROGRESS OF THE WORK OF THE ENGLISH PLACE-NAME SOCIETY



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faultless array by so small a staff. Everyone who has tried it knows that the amount of work involved in tabulating facts is infinitely greater than in the composition of continuous narrative, the liability to error far greater, and the results, when published, misleadingly disproportionate in apparent volume to the labour of preparation. To review work of this character is difficult. The standard of accuracy is so high that there are few openings for criticism, and if one criticizes a few minor points, it still remains true that 99 per cent. or more of the book deserves unstinted praise.

The Introduction is, as usual, a delight to read, both for form and content. Hertfordshire is described as an 'artificial' county, without geographical unity, the product of Edward the Elder's reorganization early in the 10th century. It 'cannot have been a region of primary Anglo-Saxon settlement' (p. xiv). On the other hand, only five of the county's surviving place-names are certainly of Celtic origin—four river-names and the district name 'Chiltern'. Yet Hertfordshire contained an important Romano-British town (Verulamium), whose survival into the 5th century is historically attested by the mission of St. Germanus and is the classic instance of such survival. In addition there was a 'camp' at Braughing, midway between Verulamium and Camulodunum (Colchester), near an important junction of Roman roads.<sup>1</sup> There were several Roman villas in the county, and a group of native settlements is to be inferred from scattered remains round Hitchin. Perhaps it may be suggested that its life in Romano-British times was on the whole rather urban and artificial; that it quickly relapsed during the Dark Ages into a more primitive form, allowing the forces of nature, particularly trees and scrub, to regain partial control; and that when the tide of settlement turned again to reclaim the region, the older names were submerged or had already been lost. That the older Celtic language did survive late there is suggested, as the only 'plausible theory', by the name of the river Beane in the Anglo-Saxon Chronicle (Beneficcan). The survival of a pre-Saxon element in the modern population of Hertfordshire was, of course, suggested long ago by Beddoe, on purely anthropological grounds. Such a theory is, moreover, in agreement with Dr Wheeler's explanation

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<sup>1</sup>The ramparts were discovered recently in Gatesbury wood, and Gatesbury should be added to the list of 'camps' on p. 243. Abundant remains of an important early settlement have been found just outside it. I am indebted to Mr M. R. Hull of Colchester and Mr Christopher Hawkes of the British Museum for the information about this site, which I have visited.

## HERTFORDSHIRE PLACE-NAMES

of the purpose of Grim's ditches (*London and the Saxons*, 59-74, and *Antiquaries Journal*, 1934, xiv, 254-63).

The following minor observations are offered. 'Thames' (p. xiii) must be a misprint for 'Thame'. The explanation of Shootersway given on p. xx seems inconsistent with that on p. 49 (*scocere* for *sceācere*?). Moreover, is it certain that the word here involved is not *scucca*, a demon? In support of the derivation given (Thieves' way, from *sceācere*), however, are several other instances of old roads called Thieves' Lane or Thieves' Way, one of them in Hertfordshire (Thieves' Street in Reed and Therfield, p. 161). It is nice that Puckeridge means what it seems to, the ridge of Puck, and suggestive that the hamlet should be situated on Ermine Street at the meeting-place of five Roman roads, within a mile of the Gatesbury camp. The celebrated Six Hills beside the Roman road south of Stevenage are referred to in 1295 (Sixburwefeld); it might have been added that they are certainly Roman.<sup>2</sup> (They are visible from the train, on the Great Northern main line, just south of Stevenage Station, on the east side). The strange name Nasty (p. 134), in Great Munden, was the home of Henry de Nasthey (1294) and goes back to the Middle English *atten ast hey*, at the east enclosure. Arbury Banks in Ashwell (p. 153) is a camp and a derivation from ME *hereberge*, harbour, would seem more probable than from OE *eorth-burh*, earthwork, and is supported by the modern pronunciation (Harburra), and the form quoted Herburghgate (1406). Highley hill in the same parish (Nilowe, in 1327) is derived from *nigon*, nine, and *hlaw*, mound; and it is suggested that there was a large group of barrows formerly, of which now only two survive. This suggestion is confirmed by one of Major Allen's air-photos (4/34) which shows evident traces of barrow-circles in the immediate vicinity. The biggest remaining barrow (which is visible from a distance and almost a minor land-mark) is locally known as Pancake Hill and there is said to be some folk-lore about it. (These facts are all recorded in manuscript on maps in the Archaeological Department of the Ordnance Survey). Metley hill (p. 168) is called Tree Barrow on the 2-inch manuscript map of 1804-5 from which the 1-inch Ordnance Map was engraved. Bygrave (p. 155) is *Biggrafan*, by the entrenchments; the earliest mention is in 973, but the earth-works there would otherwise have been assigned (from their present superficial appearance and plan) to a much later date. Pen hill in Therfield is undoubtedly a secondary name derived from Penbottome

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<sup>2</sup> See the article on Roman Barrows in *ANTIQUITY*, 1936, x, 37-53.

## ANTIQUITY

(1676) where are a number of 'valley entrenchments' or pennings of (probably) medieval date. The explanation of *dell* on pp. 252-3 is thoroughly sound; but surely it can never have borne the same meaning as *denu*? *Dell* meant a chalk-pit, usually a vertical shaft (which often collapsed and left a round depression); the name (now applied also to *open* chalk-pits) abounds in north Hampshire. *Denu* on the other hand meant a valley, a natural feature and much bigger. I believe that place-names with 'Deadman' originated with the discovery of human bones there, and not that there is any reference to any particular 'fatality' that was known and remembered. The common name 'Deadman's grave' suggests that 'Deadman' meant 'corpse' or 'skeleton'. Under Devil's Dyke and Grim's Ditch (p. 7) reference should have been made to Dr Mortimer Wheeler's recent excavation reports, rather than to the V.C.H., which has now naturally become out-of-date.<sup>3</sup>

Surviving field-names have been collected, we gather, by school-children (p. vii); it is to be hoped that they have at the same time been written on the 6-inch Ordnance maps, for permanent record.

Four celebrated ancient roads, Akeman Street, Ermine Street, Watling Street, and the Icknield Way, all pass across the county, and it is interesting to note that all are recorded there by the earlier forms of these names.

Finally, we would urge all those interested in early English history to support a good institution, and one that is very much alive at the present time (Director, Sir Allen Mawer, University College, Gower Street, London, W.C. 1; annual subscription, 25s). This recommendation is particularly directed to the attention of Libraries, both in this country and in America; for it is still possible to obtain a complete set of the volumes published.

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<sup>3</sup> See for example his article in *ANTIQUITY*, 1933, vii, 21-35; on p. 26 is a full-page plan of the Devil's Dyke oppidum. The definitive accounts are those published, as articles or Research Reports, by the Society of Antiquaries of London.



# The City Walls of Nicaea\*

by ALFONS MARIA SCHNEIDER

THE village of İznik, north-east of Brussa, and far from all trade-routes, is today the mere ghost of what was once an important city. It is quite hidden within the ancient circumvallation, and occupies scarcely a third of the former area of the town. The wall itself, one of the most impressive and best-preserved Byzantine monuments of Asia Minor, forms an irregular polygon (plan, FIG. 1). The *lacus Ascanius* washes it on the west, while the other sides are bordered by a green, well-wooded plain, gradually giving place on the north-east to the slopes of Elmali dagh. A charming view of the village and walls can be obtained from a small knoll about 300 metres east of the city, with the lake shimmering in the distance and the fields shaded with cypresses, planes, walnut and other fruit-trees. The description of Catullus still holds good (*Nicaeaeque ager uber aestuosae*, 46.5): nature here is inexhaustible, and gives in abundance of the finest fruits to anyone who tills the earth. From May to October the weather is nearly always good, and in the height of summer the heat can be unbearable. Certainly the air is no longer pure and healthy as it was in Byzantine days; neglected water-courses and pools of subterranean water have brought malaria in their train. Nor is the sea alive with boats, for there is no fishing. Yet within recent years an improvement has taken place in those conditions which gave older travellers reason for feeling melancholy or annoyance, and it begins to look as if the village were slowly awakening from its long sleep.

As rival to Nicomedia, no small part was played in Roman, Byzantine and early Ottoman times by the ancient Bithynian settlement of Ankore, which was made a city by Antigonus Cyclops in 316 B.C., and named Nicaea by Lysimachus. Nothing remains today of the Hellenistic circumvallation, which, Strabo tells us (12.565), was 16 stades in extent (2893 m.). But the existing wall measures 4970 m., so that the ancient enceinte enclosed considerably less ground, and it

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\* Translated by Professor R. G. Austin.

## ANTIQUITY

is doubtful if it coincided anywhere with the later one still to be seen. We do not know when the Hellenistic walls were abandoned ; but this very likely took place in the early Empire, for the Roman arches used in the construction of the Stambul and Lefke gates (PLATES I, II), which probably mark the limits of the already enlarged city, may be dated to the year 78-79 from inscriptions of Plancius Varus. It is uncertain whether these archways already had walls joined to them, but we may conjecture that the line of walls was not constructed until Hadrian's time, when Nicaea was rebuilt after the earthquake of 123. However, this rebuilding does not appear to have been a very solid piece of work, for much damage was done to the city by the invasion of the Goths in 258, and new fortifications were at once put in hand to suit the changed conditions. Numismatic evidence shows that the work was begun under Gallienus, continued by Macrinus and Quietus (260-1), and completed under Claudius Gothicus in 268-9 (see the inscription on the Yenişehir gate, *C.I.G.* 3748. After this our sources are silent for a long period. We cannot ascertain whether or when the late-Roman fortifications were destroyed, or who built the walls which are substantially still standing, if a reconstruction was actually made. The earthquake of 368 (attested by various sources) did much damage in the city, but we hear nothing of a reconstruction of the walls. It is not until 727, in an inscription of Leo and Constantine, that we have evidence of fairly extensive repairs. Therefore only a searching examination of the walls themselves will throw light on the problem. This has produced the following results.<sup>1</sup>

The walls and towers of the oldest existing structure are built in the usual late-Roman method, with courses of masonry alternating with courses of brick. The walls of Constantinople show exactly the same technique (see *ANTIQUITY*, 1937, XI, 465), only with this difference, that there the masonry consists of neatly-cut square flags, whereas in Nicaea irregular boulders have been used, trimmed on the outside only. But the joins are neatly covered with a reddish dressing, giving the effect of a smooth outer surface. The curtains, some 3.6 m. broad by 9 m. high, rest generally on a socle of stone which often bears Roman inscriptions. The towers, which are semicircular and 9 m. in breadth, are placed at a distance of about 60-70 m. apart, and are built into the wall ; but their outer casing, unlike that of the wall, consists entirely of brickwork (PLATE II, 2). Not many of these towers remain, and such

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<sup>1</sup> See A. M. Schneider and W. Karnapp, '*Die Stadtmauer von Iznik*', *Istanbuler Forschungen*, 1938, vol. 9.

# NİCAEA-İZNİK

100 50 0 100 200 300 400 m



FIG. 1. PLAN OF NICAIA (İZNİK) SHOWING THE PRINCIPAL GATES AND TOWERS





## THE CITY WALLS OF NICAEA

as are left have been much damaged by earthquakes, and patched. But it is clear that they all have a sally-port at the ground level, vaulted with clay, leading into the tower from the city side and then, inside the tower, bending to the right and so leading outwards. At the level of the ramparts the tower usually had a storey without embrasures, which was therefore not intended for defence purposes : the tower platform alone was so used, reached by a stairway leading up the back wall. The ramparts were accessible by great flights of steps built against the wall, while other stairways are built inside the wall itself. The plan of the great city gates (Stambul, Lefke, Yenişehir) is such that behind the entrance proper, which can be closed by a portcullis, there is also a square inner court, again with its portcullis. At the Stambul gate alone (FIG. 2) this inner court is oval.

At a later period the towers on the south and west were doubled. The newer ones can be recognized by the fact that they are not built into the wall and have no sally-port ; otherwise they show the same technique as the older towers and are hardly distinguishable from them, except that the upper storey has a U-shaped outline, and was either quite open or had a lattice-roof of beams.

The structures just described cannot be directly dated ; but they were built before the repair of the walls and towers referred to in an inscription of Leo and Constantine, which must have been made after the Arab incursion in 727. At that time several towers were cased and made square with blocks of fine marble, and part of the curtains were similarly faced ; probably also the ramparts were covered with marble and then crenellated. Scraping behind the Stambul gate established the date of the earlier structure : for if one stands in the inner court it can be seen that where the wall turns westwards from the tower on the left, a stretch of casing about 8 m. long is not smooth and built for appearance as elsewhere, but was here built on to an already existing wall. On closer inspection it can be established that on this stretch of wall the negative impression of finely-fitted masonry may be seen. Scraping showed that the wall of the first period was set in front of an older brick wall (FIG. 2), and the masonry was forced into the outer plaster of this earlier wall : thus we have before us a wall which is only apparently made of masonry. Certainly no one will consider this of Byzantine construction ; nor can it belong to the period of Claudius, for a wall intended to withstand a siege would not be amateurishly plastered. Therefore it can probably only date from Hadrian's time, *i.e.*, it was built after the earthquake of 123. It follows further that the walls with

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the alternating courses of brick and the built-in towers date from the time of Claudius Gothicus, and do not belong to the Byzantine period as has hitherto been assumed. The late dating of this type of wall is caused entirely by the supposition that such a technique is specifically

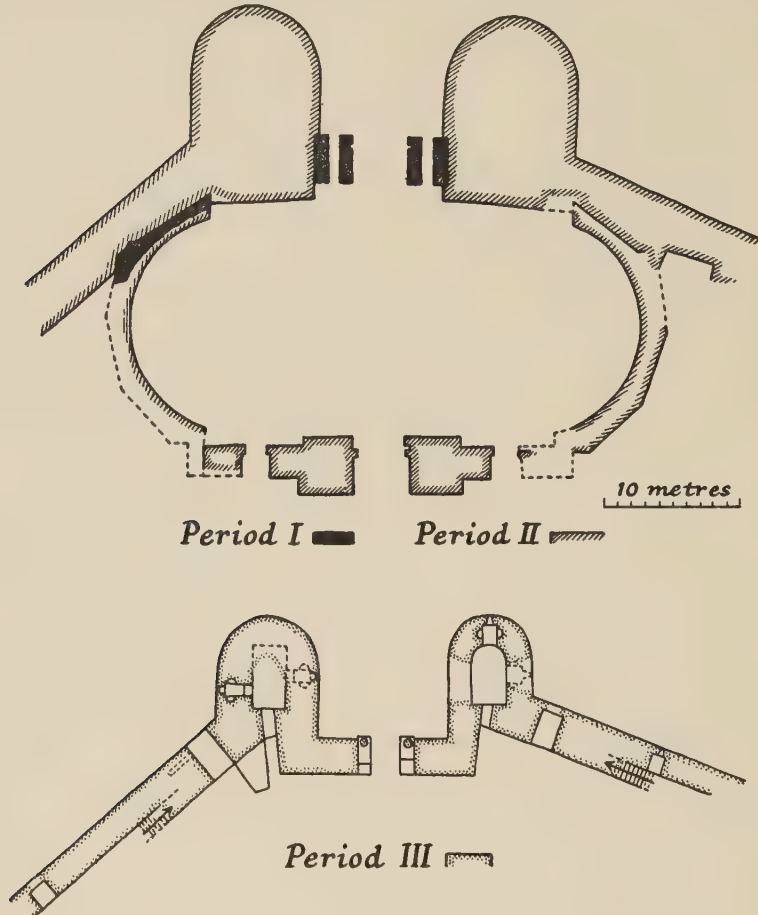
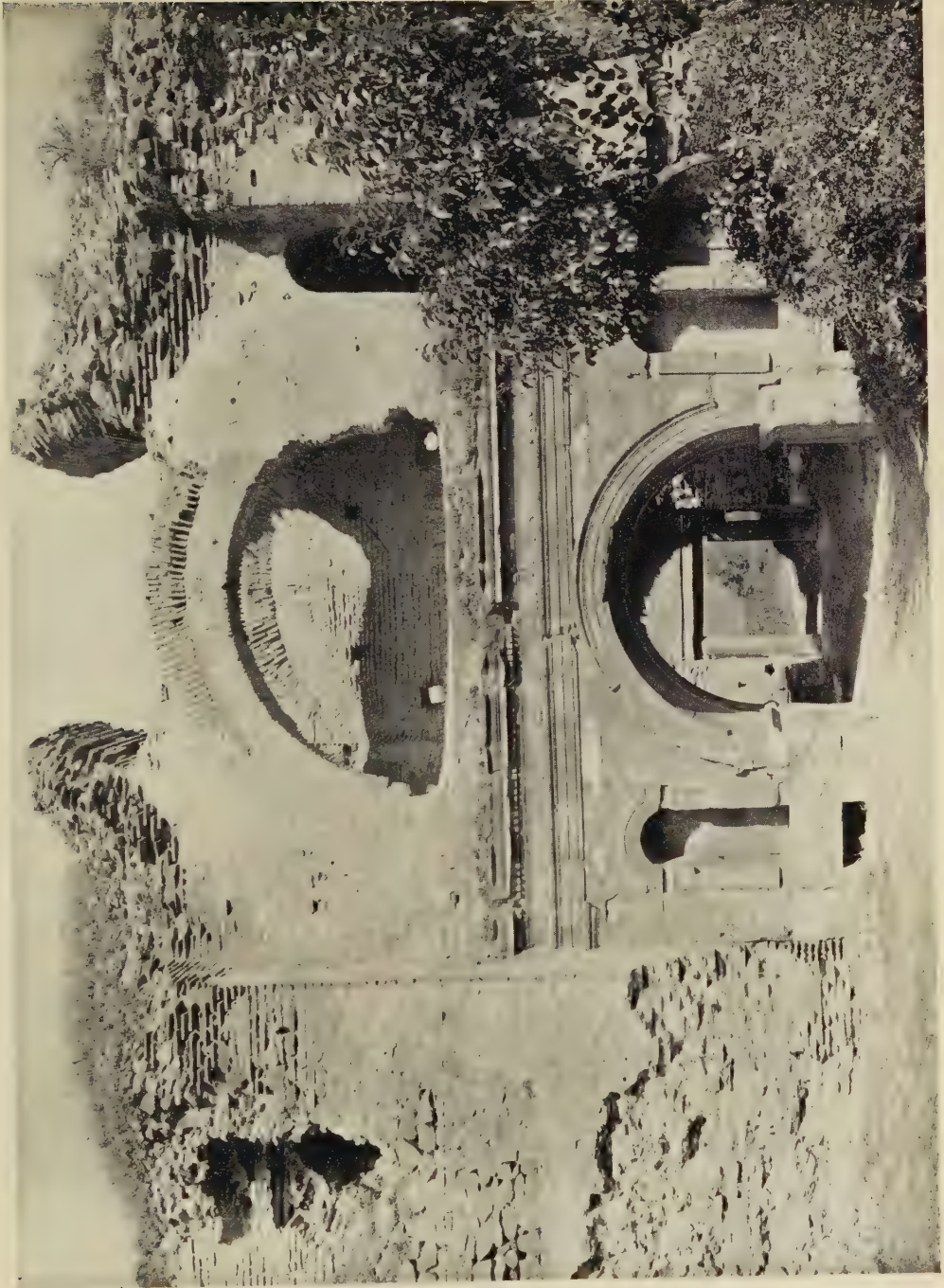


FIG. 2. STAMBUL GATE, NICAEA, SHOWING THE PERIODS OF CONSTRUCTION

Byzantine. This is untrue, as regards both period and provenance. Such work is found in many places in Gaul and Britain—*e.g.* Tours, Deutz, Orléans, Dax, Strasbourg, Burgh Castle, Carnarvon, Lympne, Porchester, Verulamium, and in Old Cairo (see *ANTIQUITY*, 1930, IV, 484). We may infer therefore that this technique was evolved in Gaul



PLATE I

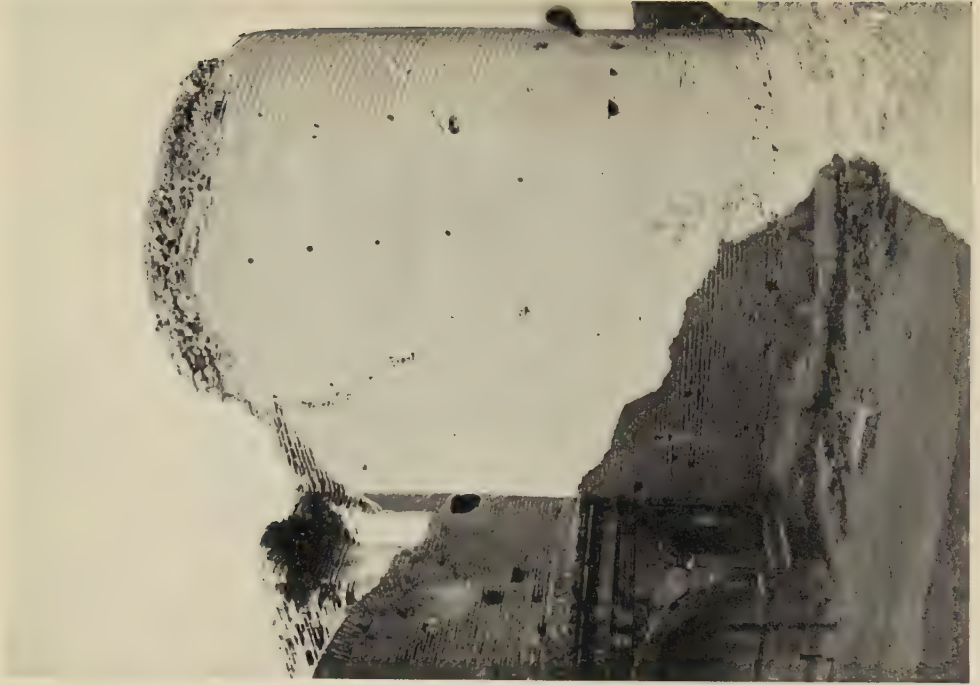


ROMAN ARCHES, STAMBUL GATE, NICAEA (İZNIK). (See p. 438)

PLATE II



1. LEFKE GATE, NICAEA. (See p. 438)



2. TOWER, STAMBUL GATE, NICAEA, SHOWING THE OUTER CASING OF BRICK. (See pp. 438-40)



PLATE III



TOWER 106, THE 'BABYLONIAN TOWER', NICAEA, ON THE SITE OF THE TOWER OF GONATAS. (See p. 442)



PLATE IV



TOWERS (15 22) OF THE MAIN WALL, NICAEA. (See p. 442)

## THE CITY WALLS OF NICAËA

in the third century and passed from there to the east, Nicaea being the first example in the east known to us. The style of the fortifications also agrees with this dating: the towers are all semicircular, and are built into the wall, a method already obsolete when the land-walls of Constantinople were built. The height of the walls<sup>2</sup> is relatively low, as in other sites of the same period. Inner courts are not found in gateways of the Byzantine period; they disappear about the fourth century.<sup>3</sup> The towers suffered greatly from earthquakes, while the walls at the worst formed large cracks (many such fissures can be seen in the curtains of Nicaea), and it is therefore not surprising that a quarter of all the towers has been completely destroyed, and of the rest only a few, and those precisely the latest built, are in good preservation. Those belonging to the first structure must already have been in a pitiful condition at the time of the great earthquake of 368. I venture the opinion that occasion was then taken, in the necessary reconstruction, to interpolate the towers of the second period between those of the first, which were somewhat wide apart, for they can hardly be distinguished from one another as regards the technique of the brickwork.

Evidence of further repairs is shown by four inscriptions of the Emperor Michael, one of which dates to the year 857-8. Unfortunately none of these inscriptions is now in its original position, but the stonework suggests that they may be assigned to towers 97-100, for these are exactly similar to the towers of the citadel of Ankara built by Michael. Probably the most catastrophic earthquake in later times was that of September 1065, when practically all the churches were destroyed and the walls badly damaged. It is doubtless to this date that we must assign the numerous repairs to the towers (PLATE II, 2), which show a quite peculiar technique. Alternate bricks in the outer surface have been set back somewhat and then plastered, so that they cannot be seen from the exterior, thus causing the abreuvoir between the visible bricks to be very wide (FIG. 3a).<sup>4</sup> In 1081 the city fell into the power of one of the many Seljuk hordes which were originally in the pay of the Sultans of Rum and formed the garrison of Nicaea, but later

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<sup>2</sup> Compare Trier (6.13 m.), Aosta (6.7 m.), Cologne (7.2 m.), Rome (about 8 m.)

<sup>3</sup> Such courts may be seen at Pompeii, Nîmes, Aosta, Turin, Spalato (palace of Diocletian), and Rome (porta Ostiensis, porta Tiburtina; cf. I. A. Richmond, *The City Walls of Imperial Rome*, fig. 19, 33).

<sup>4</sup> Similar technique is found in buildings that can be definitely dated to the 11th-12th centuries, such as the palace of the Mangana and the wall of Comnenus in Constantinople, and the somewhat later church of Pantocrator.

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refused allegiance. Sultan Sulaiman lived there for about ten years at this period. We cannot assume that these nomad warriors, at first only half-settled, made any additions to the buildings inside the city or to the walls. The building of the outer wall can certainly not be ascribed to them, as is generally done. Naturally the Byzantines made several attempts to win back this city, which was so important for them. Various surprise assaults were unsuccessful, until in 1097 the Crusaders invested it; but surrender was even then only attained by a complete blockade, for the primitive siege-engines of the Franks were useless against the sturdy walls. Only on the south did they damage the walls, near the Yenışehir gate, causing the destruction of the so-called tower of Gonatas. This tower stood at the southwest corner, roughly where tower 106 was later built. It was temporarily replaced by a sort of bastion (PLATE III), in which are the headstones of many Seljuk graves.

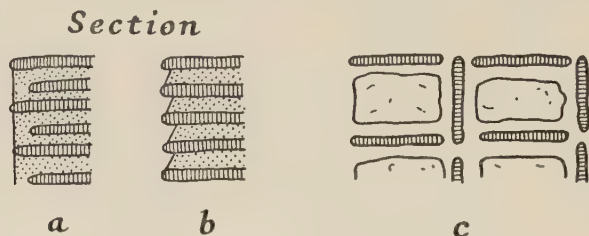


FIG. 3. SECTIONS OF TOWER WALLS, NICAËA

Nicaea's palmy days undoubtedly fell in the time of the Laskarids (1204-1261). During this period the outer wall was erected, mainly under Theodorus I, as we learn from a panegyric of the younger Theodorus, written before 1254. In consequence of the construction of this outer wall, the curtains must have been increased in height and a storey added to the towers. Apart from this, several towers of the main wall were rebuilt at this time, *e.g.* nos. 19, 20 (see PLATE IV), 23, 24, 106. These are recognized from the fact that the mortar is diagonally scraped off, giving the wall a saw-like profile (FIG. 3b).<sup>5</sup> Together with this technique the method known as *Kästelwerk* is used (see FIG. 3c): both may be seen together in tower 106 (*kiz kulesi*), which is called the 'Babylonian tower' in the inscription of Theodorus Laskaris (PLATE III).

<sup>5</sup> Walling of a similar type occurs considerably earlier, *e.g.* in the church of Clemens at Ankara (8th-9th centuries), in the Kalender camii at Constantinople (about 850) and in the Kilise camii (10th-11th centuries).



## THE CITY WALLS OF NICAËA

But this St. Martin's summer of Nicaea did not last long. The city's prosperity was irretrievably undermined by the Turks, who paralysed all trade, until in the end the city could only be reached by the sea-route. But in 1330 its fate was finally sealed, and it fell an easy prey to Sultan Orkhan. The Emperor Andronicus was defeated while hastening to its defence, and had to withdraw without accomplishing his object. Sulaiman Pasha then became governor of Iznik, as it was now called, but the seat of the Sanjak was soon transferred to the more conveniently placed İzmit. The importance of the city now began to wane, cut off as it was from trade-routes, and its burning by Timur in 1402 must have been its physical death-blow. Certainly the place regained some repute from the faience factory established there by the sultans, but its decay continued apace. Naturally no further attention was paid to the walls, and when Hans Dernschwam visited Iznik about 1555 in the service of the Fuggers, he found the moat already filled in and many towers in ruins. Thirty years later Reinhold Lubenau reported that Sultan Selim had destroyed one of the gates. Of the 124 towers, a number had collapsed through age, but some were certainly destroyed deliberately. We are indebted to Ch. Texier for a detailed account of the condition of the place about 1833, and his plans and illustrations still remain the chief source of information concerning Nicaea and its walls.<sup>6</sup>

Time also, unperceived of man, does its gradual work of destruction on these ancient walls. But man, less merciful, in his quest for fine bricks or stone, deals wounds that are more gaping and more deadly. Grass and bushes and a tangle of creepers cover the rubble that fills the space between the walls. A timeless, mournful silence broods over it: rarely does a bird cry from the gray old walls, or a spangled snake writhe through the undergrowth. But still, as of old, the purple pomegranates bloom, the air is heavy with the scent of myrrh, cypresses rise gigantic to the azure sky, still the spring babbles beneath the shady canopy of planes; one thing cannot be taken from the ruined 'city of the holy fathers', either by time or by man—the lovely dress of immutable nature that none may destroy.

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<sup>6</sup> The outer wall is about 14 m. distant from the main wall; it is 1.6 m. in thickness, 3-4 m. high, and rather poorly built up of boulders and bricks. The gates alone are completely of brick. The towers are only defended from the platforms.

# Bronze Age Stone Monuments of Dartmoor

by J. W. BRAILSFORD

THE lofty expanse of heather, bog and bare granite which forms the region under discussion in this paper, contains a numerous and in many ways unique group of prehistoric antiquities. Although Devonshire archaeologists have for many years been doing good work in this district, it has never, to the best of my knowledge, been comprehensively dealt with in the light of modern methods and experience. Consequently, the prehistory of Dartmoor still presents something of a mystery. After describing the material at our disposal, I shall here make a few tentative suggestions which seem to resolve some of the difficulties encountered in the interpretation of the archaeological evidence, and which may throw some light on the prehistory of the rest of southwest England.

The types of stone structure on Dartmoor which seem to belong to the Bronze Age are as follows :—

- |                              |                            |
|------------------------------|----------------------------|
| (A) Alignments or Stone Rows | (D) Cairns                 |
| (B) Stone Circles            | (E) Menhirs                |
| (C) Cists                    | (F) Hut-circles and pounds |

The last group are not strictly speaking monuments, but they unquestionably belong to the same complex as the sepulchral structures, and since they have yielded evidence for dating, their omission could hardly be justified. Other prehistoric structures, hardly referable to the Bronze Age, but which have some connexion with the matter in hand, are 'Dolmens' and 'Camps'.

## A, ALIGNMENTS

Monuments of this type are very rare in Britain outside Dartmoor, where, however, about sixty known examples occur. They consist of single, double, or multiple rows of stones, usually, and probably originally always, in association with a burial. The cairn which usually marks the starting point of the alignment is most often more or less on the summit of a ridge, from which the row or rows run downhill. The stones nearest the beginning are usually larger than the average, and the first is sometimes a fine menhir as at Drizzlecombe, Langstone

## BRONZE AGE STONE MONUMENTS OF DARTMOOR

Moor and other sites. The end of the alignment is almost invariably marked by a transverse 'blocking stone'. The intermediate stones have their long axes along the line of the row ; sometimes the first as well as the last stone is placed transversely, as at Assycombe, Cosdon, Trowlesworthy Warren 2, and some other sites. One of the Drizzlecombe blocking stones is the highest menhir on the Moor, being 17 ft. 9 ins. long overall. The stones which form the body of the row may be

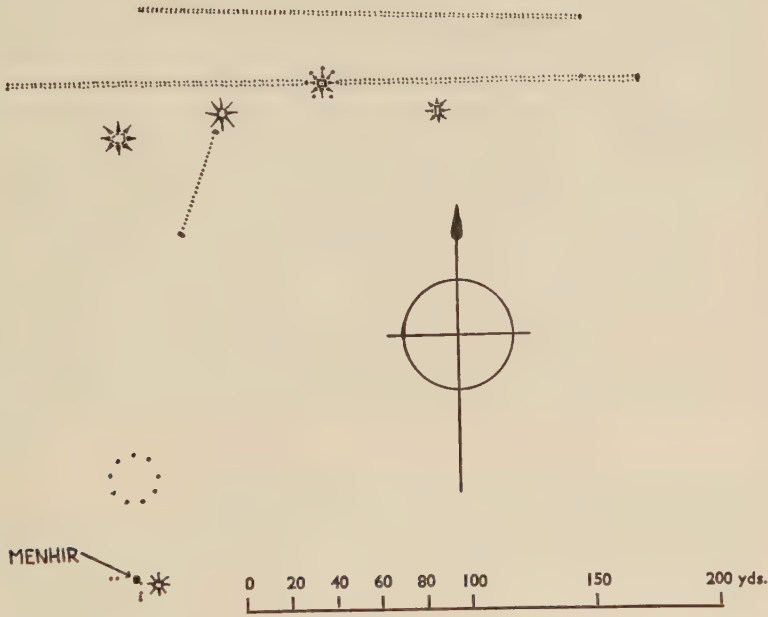


FIG. 1. STONE ROWS ETC. AT MERIVALE

only a few inches high, and are rarely over two or three feet, though many of those on Stall Moor are 6 ft. to 8 ft. 6 ins. high. Here the stones are spaced at intervals of 3-15 yards, but usually they are only about 5 ft. apart. There is great variety in the total length of these alignments. That connected with the large kist on Lakehead Hill is only 40 ft. long, but is probably incomplete. (FIG. 4). The most usual length is about 150 yards. Of those I have surveyed, nine are between 130 and 165 yards, 4 are between 400 and 413 yards, and the others, excepting the second row, also incomplete, on Lakehead Hill, are 266 yards (Merivale, FIG. 1), 62 yards (Harter Tor), 85 yards



## ANTIQUITY

(Trowlesworthy Warren), and 83 yards (Drizzlecombe, FIG. 2). The small row at Merivale, which appears to be complete, is only 46 yards long. There is a row, consisting of small, but closely set, stones, which starts with a circle on Staldon Moor, and ends with a small cairn on Green Hill, some  $2\frac{1}{4}$  miles distant. Another on Butterdon Hill is over a mile long.

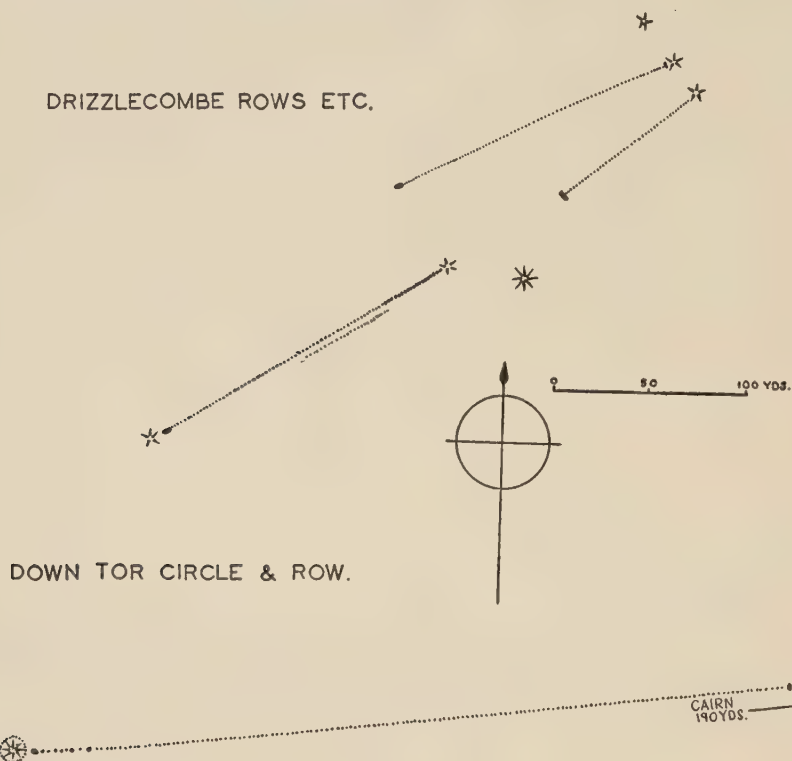


FIG. 2

The stone rows tend to run approximately east and west, as at Drizzlecombe, Merivale, Assycombe, Harter Tor, Trowlesworthy Warren 2, Down Tor (FIG. 2), Cosdon Beacon, Lakehead Hill, etc. In other cases the direction seems to be governed by the form of the ground. The Erme Valley group, including the Stall Moor and Staldon Moor—Green Hill examples, all run north and south, parallel to the river, but following the undulations of the Moor on either side. Those at Challacombe (N-S), Hurston Ridge (SW-NE), Ringmoor Down

## BRONZE AGE STONE MONUMENTS OF DARTMOOR

and Trowlesworthy Warren 1 (NNE-SSW), also follow the slope of the ground.

It is impossible to do more than conjecture the purpose of the stone rows, though many theories have been put forward. It has been suggested that they were processional ways, but it is difficult to apply this interpretation to the many examples of single alignments. They may simply represent a connecting link between the circle and outlier which is such a common type in Scotland, or a trace of the passage found in the chambered tomb from which the Dartmoor type of monument is probably derived. Fergusson<sup>1</sup> considered that the Merivale rows were a memorial of some great battle, and represented two armies drawn up face to face, but this theory has found little favour, even as regards this specific instance. Worth<sup>2</sup> believed that the alignments marked the resting-place of some great chief, and that the number of stones represented the size of his retinue. The practice of setting up rows of stones is followed today on the island of Atchin, where they are used as symbols for ancestors in religious rites.<sup>3</sup> On the same island a menhir, which replaces an original carved wooden image, is set up to represent the general ancestral spirit.

Alignments of carved stones are also found in Assam, where they are connected with a fertility cult and serve as vehicles for the souls of the dead.<sup>4</sup>

### B, STONE CIRCLES

The great majority of the Dartmoor circles are peristalithic, though in most cases the enclosed cairn or barrow has been almost or completely denuded. Consequently, a circle of this nature is often found in association with an alignment. Some of these circles are very small; there is one on Ringmoor Down only 12 ft. in diameter. Others are multiple, as that on Shovel Down, one near the Stall Moor row (FIG. 3 and PLATE 1), one on Lakehead Hill, and perhaps that at the end of the Assycombe Hill row. The best of these multiple peristalithic circles is that near Yellowmead Farm. It is a quadruple circle; the concentric rings have diameters of 62 ft., 48 ft., 38 ft., and 21 ft. respectively. None of the stones is over 4 ft. in height, but they are mostly

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<sup>1</sup> *Rude Stone Monuments*, 51.

<sup>2</sup> *Proceedings Devon Association*, 1892, pp. 387 ff.

<sup>3</sup> *Geographical Journ.*, October 1936, p. 344.

<sup>4</sup> *ANTIQUITY*, September 1929, p. 324.

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wide and set close together, especially in the innermost ring. On the west are traces of about 8 alignments.

Besides the peristalithic circle, another type is found on Dartmoor, as elsewhere in the Highland Zone of Britain, which seems to have no immediate sepulchral significance. This occurs at the 'Grey Wethers', a fine pair of circles, each about 100 ft. in diameter; on Langstone Moor, where there is a double circle, with several 'foreign' stones, and at Brisworthy, Sherberton, Cosdon, Huccaby, Fernworthy and Scorhill. These circles are all comparatively large; Langstone Moor, inner circle, 70 ft.; Brisworthy, 80 ft., Fernworthy, over 60 ft., Scorhill, 90 ft. They do not contain cairns, and except for the Fernworthy and possibly the Scorhill Circle, are not associated with alignments. It is difficult to discover either of the stone shapes recently defined by Piggott in any of the circles or stone rows.

None of the Dartmoor circles has either a bank or ditch, and they would therefore all seem to belong to the western group, derived from the peristalith of a megalithic tomb, and to have no connexion with the 'Henges'. As to whether the larger circles were used primarily as temples or burial places, it is hard to say. Ashes have been found in some, *e.g.* Fernworthy, Grey Wethers, Brisworthy, which led the excavators to believe that these circles were used as crematoria. On the other hand the charcoal may be cremated remains placed there by intent, in which case the purpose of the circles might be sepulchral, though the ashes might well represent a ritual deposit.

There are altogether over 90 known stone circles on Dartmoor, including both the above groups.

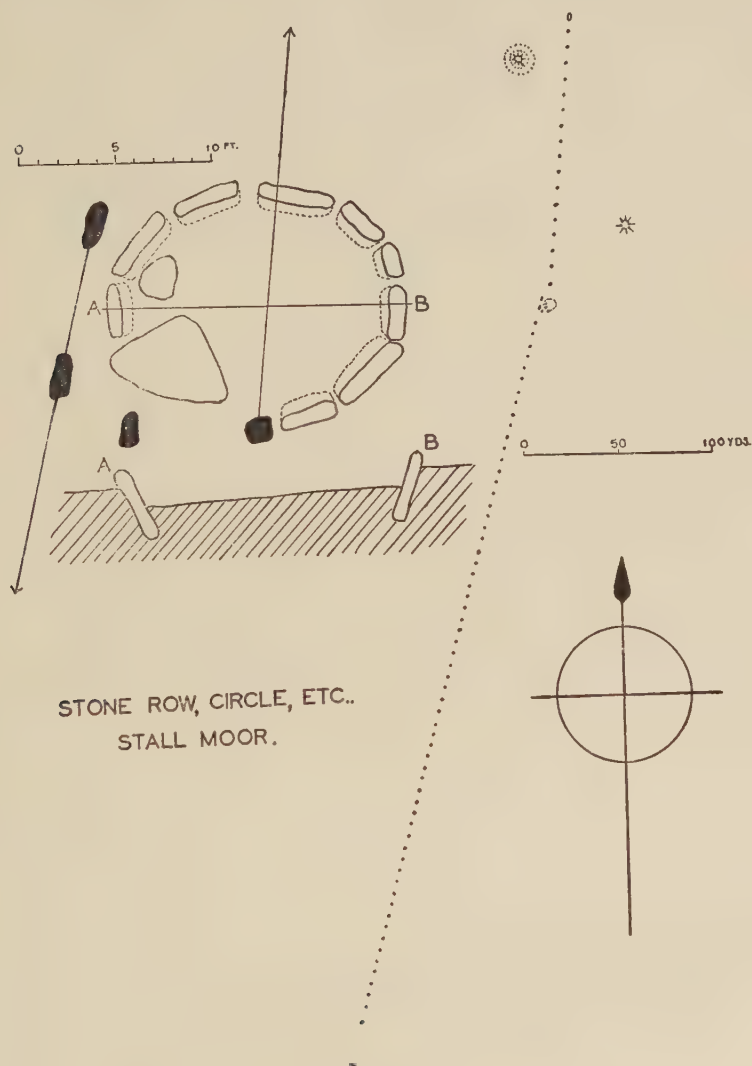
## C, CISTS

There is no evidence to show that any of the Dartmoor cists were not originally covered by a barrow or cairn. A barrow usually contains only a single cist, but at Cosdon Beacon there is a cairn which contains a double cist, and traces of a third burial. A triple alignment leads from the cairn (FIG. 4). There is a considerable variation in the size of these structures; one from Langstone Moor, unusual in that it was paved, measured internally only 1 ft. 9 ins. by 1 ft. 1 in. by 1 ft. 2 ins. On the other hand the large cist at Merivale measures 6 ft. 6 ins. by 3 ft. 3 ins. by 2 ft., and has a capstone 10 ft. by 6 ft. 6 ins. The corresponding measurements for the principal cist on Lakehead Hill are 5 ft. 6 ins. by 3 ft. 3 ins. by 2 ft. 3½ ins., 7 ft. 5 ins., and for that



## BRONZE AGE STONE MONUMENTS OF DARTMOOR

at Roundy Park 5 ft. by 4 ft. by 3 ft., 4 ft. 10 ins. by 4 ft. 4 ins. and 5 ft. by 2 ft. 6 ins.



STONE ROW, CIRCLE, ETC..  
STALL MOOR.

FIG. 3

These three have, however, all been restored, and Worth considers that they are now larger than in their original form. He gives the

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average internal measurements of over 60 Dartmoor cists as 3 ft. 1½ ins. by 1 ft. 11 ins. The average depth of 21 examples was 2 ft. 6 ins.<sup>5</sup>

The cists found on Dartmoor are almost invariably constructed of large slabs, but one at Great Nodden was walled. They sometimes have a pit in the floor, as at Great Gnat's Head, Archerton and Langcombe Bottom. None of the stones used in these cists bears any sort of decoration, which is so common on Scottish examples. In fact, none of the stones used for structural purposes by prehistoric man on Dartmoor is ornamented, or apparently even dressed in any way. There are about 110 known cists in this region. Nearly all are oriented NW-SE.

### D, CAIRNS

Cairns and barrows on Dartmoor are all of the simple 'bowl' type, with only one exception as far as I am aware. An internal or external peristalith is frequently present, but never a ditch. The mound may consist of a simple pile of stones, or there may be a small central cairn covered by an earthen mound, as at Hameldon, where there is also a stone kerb. The slabs composing the cairn may be placed sloping inwards so as to form a kind of crude cist in the centre. Paving is sometimes found under barrows. Near the cists in Langcombe Bottom a paved circle, which had been used as hearth for a large fire, was found without any covering mound. It had probably been used as a platform for cremation. Apparently this was the only rite practised on Dartmoor during the Bronze Age, but inhumed bones would not be preserved owing to the acid nature of the soil, so that evidence of inhumation would be destroyed, even if it took place. Moreover, the cists and cairns have nearly always been disturbed before scientific excavation took place. On the analogy of the rest of the Highland Zone, we should expect to find crouched inhumations associated with the types of grave found on Dartmoor. However, all the undisturbed cists which have been excavated have yielded only ashes, with occasional grave goods, usually of the poorest types.<sup>6</sup>

Cremation often took place in situ, and frequently the whole of the ashes was not collected. Sometimes the ashes are not localized in any way. On the other hand they are often collected, and deposited in a pit under the mound. These pits are often nothing but shallow holes in the earth, filled with ashes and soil, but at Hemstone Rocks and elsewhere a coverstone was present, and an example at White

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<sup>5</sup> *PDA*, 1937, p. 82.

<sup>6</sup> *PDA*, 1902, pp. 119 ff.

## BRONZE AGE STONE MONUMENTS OF DARTMOOR

Down, Lydford, was paved. Sometimes the ashes are contained in, or accompanied by an urn, as at Hurston Ridge (inverted), and Pen Beacon. Beakers have been found in cists at Fernworthy, Langcombe, and Watern Down, and elsewhere fragments of urns have been discovered in them.

The turf and topsoil had been cut away under a cairn at Fernworthy,

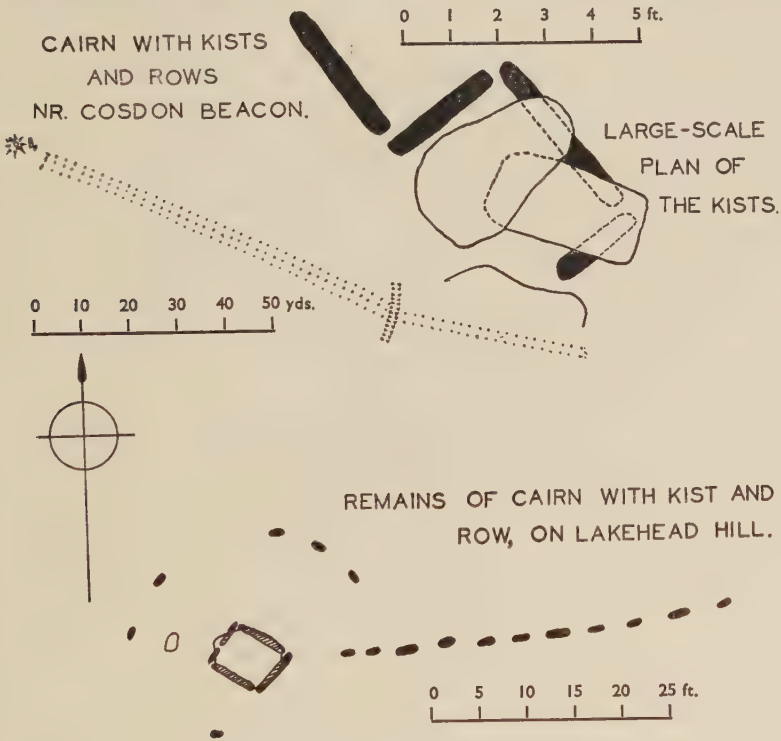


FIG. 4

so that the material of the cairn rested directly on the subsoil. In two cairns at Metherel the area inside the peristalith was lowered, and on this excavated surface was another ring of stones.<sup>7</sup>

### E, MENHIRS

As mentioned above, these usually occur at one end of an alignment. There are some examples, however, which have never been

<sup>7</sup> PDA, 1937, p. 147.



## ANTIQUITY

connected with an alignment, circle, or any other form of monument, nor a burial. The finest of these is the 'Bairdown Man', near Devil Tor.

### F, HUT-CIRCLES AND POUNDS

The density of the population which existed on Dartmoor during the Bronze Age is shown by the great number of settlements—about 100, in less than 300 square miles of territory, much of which is uninhabitable, and probably was so then. It is possible, however, that the climate of Europe may have been drier at that time, in which case the area of completely barren land would have been reduced, and the remainder improved in quality. The Moor still affords good pasture, and some justification for the enormous Bronze Age population may be found in the fact that at that time the Moorland pastures were really exceptionally fine, when compared with the forest and scrub which covered most of southern England, apart from the Chalk regions.<sup>8</sup> Of course, all the huts were not occupied at the same time (though there can be no doubt that most of the settlements were more or less permanent), so that at any given time the population was not as large as the number of huts would at first give us to suppose. It has been suggested by Pilkington-Rogers<sup>9</sup> and others, that the settlers who occupied these huts came for tin, but if this were so, practically the whole of their winnings must have been exported, and their culture has not the prosperity which follows a trading people. They would rather seem to have been predominantly a pastoral race. This conclusion is supported by the frequent occurrence of huts which can only be cattle-stalls, and by the extreme rarity of weapons of the chase. In some of the settlements the occupants grew crops in small square fields. (See Curwen, *ANTIQUITY* 1927, I, 281 ff.)

It has been questioned whether the Bronze Age occupants of Dartmoor formed a permanent population, or were not rather semi-nomad folk, who drove their herds on to the moor in summer, and retreated to the shelter of the surrounding valleys during the winter. Such a theory, however, does not seem compatible with the archaeological evidence. The extraordinary abundance of sepulchral monuments on the Moor must surely indicate a numerous settled population. I find it impossible to believe that the primitive inhabitants of the surrounding country carried their dead up on to the Moor, as into a vast cemetery, and there erected great memorials of a type of which there

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<sup>8</sup> *PDA*, 1894, p. 185.

<sup>9</sup> *PDA*, 1932, p. 379.

## BRONZE AGE STONE MONUMENTS OF DARTMOOR

are only three or four others in Southern England. If Dartmoor was a 'sacred area' it was probably thickly peopled with the living as well as the dead, like Salisbury Plain. However, there is little evidence for communication between the Moor and the fertile lowlands during the prehistoric period. The culture found on the Moor seems to be of a purely local type, developed by folk living on the Moor, and almost completely isolated from the rest of the world, at any rate in the later stages of the Bronze Age. I shall, in dealing with the 'Camps', give further evidence for the existence of a permanent population on the Moor at the end of the Bronze Age.

To return to the question whether the people who dwelt in the hut-circles were miners as well as farmers. Although evidence for the working of tin during the Bronze Age is fairly abundant in Cornwall,<sup>10</sup> it does not seem to have been practised on Dartmoor before medieval times. However, the later tanners would have destroyed any traces of prehistoric working. Owing to the absence of conclusive evidence, and the scanty attention which has hitherto been paid to the matter, it is best to leave the question of whether tin-working was carried out on Dartmoor in prehistoric times until more work has been done on the subject. It has been suggested that the concentration of settlements in the river valleys shows the existence of tin-streaming, but it is more probable that it was due to the shelter afforded by such a situation, and to the water supply and means of communication which the river would give. Moreover, the density of settlement does not correspond with the relative abundance of tin deposits.

We come now to the actual dwellings of Bronze Age man, the hut-circles. Those at Grimspound may be taken as typical examples.<sup>11</sup> Their walls consist of a basis of large vertical slabs of rock, levelled up with small stones, and backed outside with a bank of turf. The doorways, which usually face southwest, are frequently protected from the wind by shelter-walls, and are paved; the jambs are 2 to 3 feet high. The floors are sometimes paved, or consist simply of the subsoil beaten hard. A paved dais was usually constructed on the right side of the entrance, which here is most commonly the higher or southern side of the hut. A flat stone in the centre of the floor formed a base for the roof-pole. A hearth and also an ash-filled 'cooking hole', occur in the huts which were occupied by the settlers themselves. The stones which had fallen from the walls of the Grimspound huts were only

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<sup>10</sup> Hencken, *Archaeology of Cornwall and Scilly*.

<sup>11</sup> PDA, 1894.

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sufficient to raise the sides to a height of 3 ft. or so, showing that the huts were roofed with thatch or turves. Some of the huts showed no traces of human occupation, and must have served for cattle-stalls, as the doorways were unusually wide in these examples. Others were doubtless store-houses. The huts at Grimspound range from 6 ft. 6 ins. to 15 ft. 6 ins. in diameter, and are on the average rather smaller than is usual.

Excavation has shown that in hut-circles near the border of the moor, where a comparatively plentiful supply of wood was available, the raised stone dais was replaced by one of logs, kept in place by upright stones. Larger pieces of wood were used for fuel on these sites than elsewhere.

Cooking was performed by means of 'pot-boilers' and 'cooking-holes'. ('Cooking-holes' with pots still in situ have been excavated at Legis Tor and Raddick Hill.<sup>12</sup> One at Legis Tor, which contained two 'pot-boilers', had been broken in antiquity, and mended with unbaked china-clay). At Harter Tor, slate covers have been found actually resting on the mouth of a pot. They also occurred at Grea Tor and Blackslade Down. Similar objects were found at Skara Brae, Orkney.<sup>13</sup> The pots from Legis Tor and Raddick Hill were round-bottomed, but sherds of flat-bottomed pots have been found. Large circular stones, which seem to have been used to protect the apex of the roof, occur at Whiten Ridge, King's Oven, and Buttern Down. A modern example of this type, used in a similar fashion, was in 1896<sup>14</sup> still in use on a building at Berry Down farm.

The fuel used in the Dartmoor huts consisted of stunted oak, alder and peat. Baring-Gould,<sup>15</sup> describes the discovery of a hut containing charcoal, and numerous heat-cracked stones. He concludes that it was a primitive Turkish bath, in which water was poured over hot stones to produce a cloud of steam. A similar practice exists among the Lapps at the present day. At Shapley Common and Blackslade Down large huts were found, each connected with a small one which contained so much charcoal, and so many potsherds, that it is legitimate to assume it served the purpose of kitchen to the larger building.<sup>16</sup>

The prehistoric pounds of Dartmoor, which contain many of the hut-circles, consist of more or less circular enclosures, walled with dry, unhewn masonry. In size they vary from those which contain only

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<sup>12</sup> PDA, 1896, pp. 174 ff.

<sup>13</sup> V. G. Childe, *Prehistory of Scotland*, 180.

<sup>14</sup> PDA, 1896, p. 180.

<sup>15</sup> *A Book of Dartmoor*, 46.

<sup>16</sup> PDA, 1895, p. 88; 1897, p. 148.



## BRONZE AGE STONE MONUMENTS OF DARTMOOR

two or three hut-circles, to the large type such as Grimspound (4 acres). That at Broadun is 12 acres in extent. Grimspound is unusual in having a double wall. Each part is built on the same principle as the hut walls, is 4 to 5 ft. high, and about 3 ft. wide. The space between is about 3 ft. wide, and may be reached from the interior of the pound. It was probably originally roofed over with beams and turf. It seems probable that this space was used for storage or even for habitation, and in the latter event, a parallel would be found in the occupied ditches of causewayed camps, if these really were occupied.

That the Dartmoor pounds were not in any way forts, is shown by their weak defences, simple entrances, and often indefensible positions, usually in a valley. That at Broadun is now without any water supply. They were rather enclosures for cattle, and a protection against prowling wild beasts. They even seem to be inadequate for this latter purpose, but it is probable that a hedge of thorn or furze boughs was erected along the walls, which would greatly increase their defensive power.

We now come to some groups of antiquities which cannot be assigned to the Bronze Age, or only doubtfully. They have nevertheless some connexion with the subject of this paper, and belong to the periods immediately preceding or following that under discussion. I shall start with the Dolmens.

Dolmens are the only truly megalithic monuments found on Dartmoor, and probably in every case are the remains of the chamber of a passage-grave. Four examples are known, all on the fringes of the moor. The finest is the 'Spinsters' Rock' near Drewsteignton, which, according to local tradition, was set up by three spinsters before breakfast. The coverstone of this monument measures 15 ft. by 10 ft., and rests on three uprights which are from  $6\frac{1}{2}$  to 9 ft. high. It weighs about 16 tons. According to Polwhele and William Grey there was at one time a complex of circles and stone rows in association with the 'Spinsters' Rock', but their accounts are inconsistent, and of dubious accuracy. The only certain features seem to have been an avenue to the west of the dolmen and a pair of circles nearby.<sup>17</sup> The monument stands in a ploughed field, and as far as I could discover, there is no trace of any barrow or other structure connected with it at the present day. Its present form is not original, since it has been 'restored'.

On Shovel Down are the remains of what may be another dolmen,

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<sup>17</sup> Ormerod, *Archaeological Journal*, 1872, p. 348; *Devon Notes & Queries*, xv, 124; *PDA*, 1930, p. 249.

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the 'Three Boys'. Only one stone is now left. This may at one time have been connected to the Fernworthy circle by an avenue.<sup>18</sup>

The third dolmen is at Coringdon Ball, near South Brent. Here the stones lie at the southern end of a long barrow about 65 yards long and 15 yards wide. Only one upright, 4 ft. 3 ins. high, is left standing, but two of the fallen stones measure about 12 ft. by 7 ft. (PLATES II, III). A short distance to the east is a set of badly despoiled alignments, apparently about eight rows running parallel in an east-west direction, and connected with a cairn on the west. The remains of another Dolmen are to be found on Cuckoo Ball.<sup>19</sup>

It will be seen that all the first three Dolmens seem to be connected with typical monuments of the Bronze Age complex, with which they appear to be, broadly speaking, contemporary, though probably belonging to the earliest phase.

The intimate connexion between the hut-circles and the sepulchral monuments of the Bronze Age complex may be emphasized here. Not only has excavation produced pottery and other finds of similar type from both cairns and huts, but at all the greatest alignments pounds and hut-circles are found in immediate association, and great monuments never occur in a district where these dwellings are rare.

The last class of prehistoric structures with which I shall deal here is that of the hill-forts, or camps, of which there are some 20 on the borders of the Moor. These are all of the type which has been shown to belong to the earlier part of the prehistoric Iron Age. None of these sites has been adequately excavated, but pottery similar to that from the Glastonbury Lake-Village has been found at Cranbrook Castle, together with a granite quern.<sup>20</sup> The earthworks at Holne Chase have yielded iron currency bars,<sup>21</sup> and iron spearheads have been found close by.<sup>22</sup> The camp at White Tor, which is the only one on the Moor proper, is also the one which has been most thoroughly investigated.<sup>23</sup> Owing to the different nature of the site, its construction is unlike the other forts, in that stone is used far more abundantly. It would perhaps be unwise to insist on its contemporaneity with the other hill-forts, though it seems to fit in the general system. The only finds made during the excavation were flint flakes, and some coarse sherds.

The hill-forts are in extremely well chosen positions. (See Ordnance

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<sup>18</sup> *PDA*, 1892, p. 391.

<sup>19</sup> *PDA*, 1911, p. 96.

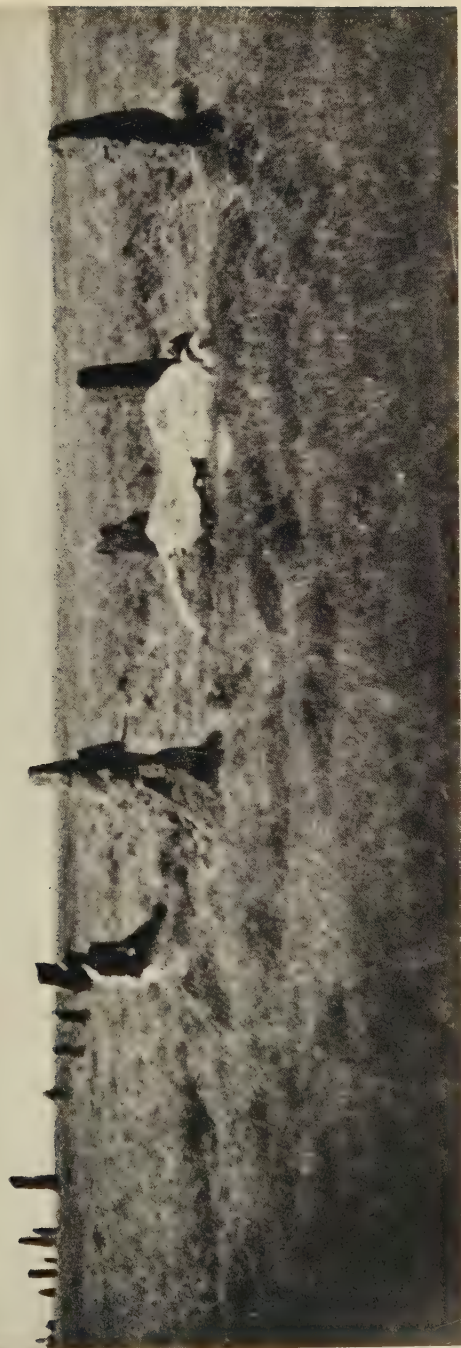
<sup>20</sup> *PDA*, 1901, p. 129.

<sup>21</sup> *PDA*, 1932, p. 386.

<sup>22</sup> *V.C.H. Devonshire*, I, p. 597.

<sup>23</sup> *PDA*, 1899, p. 146.

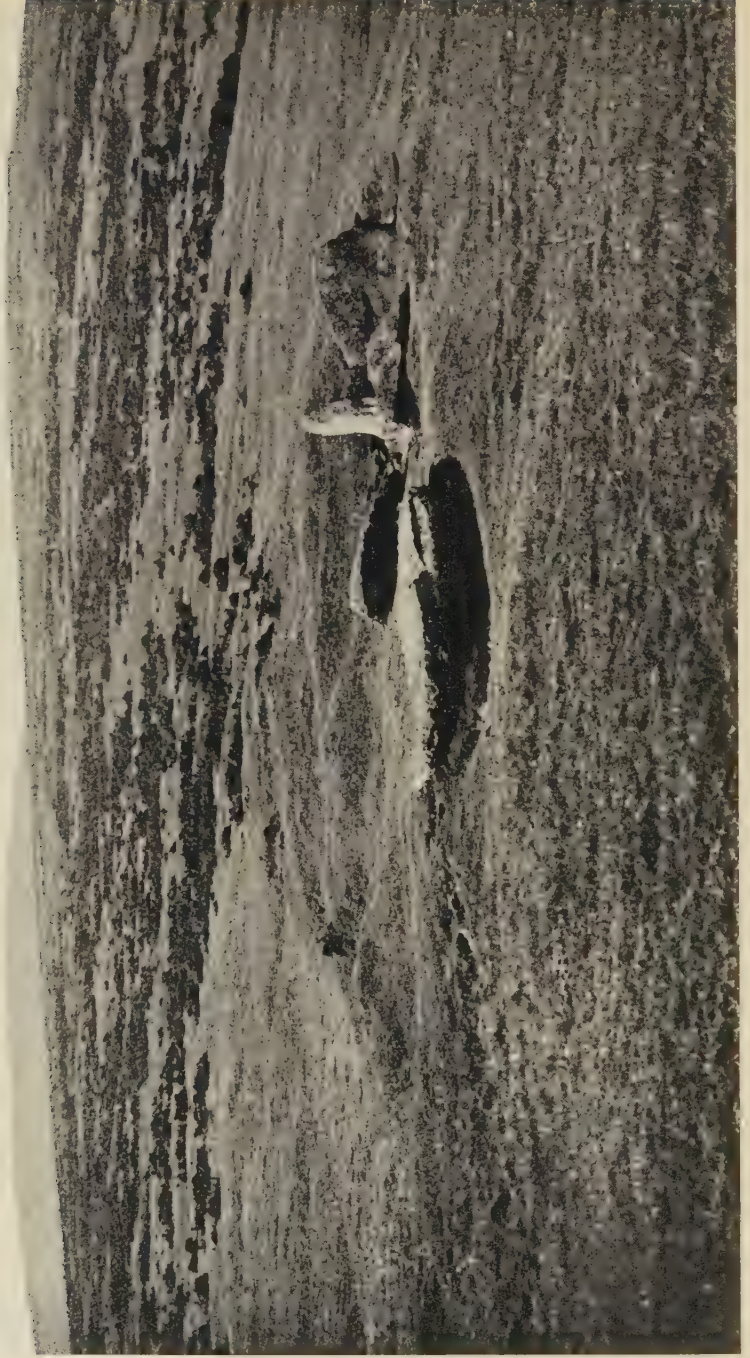
PLATE I



STONE CIRCLES AND ROW ON STALL MOOR. (*See p. 447*)  
*Ph. J. W. Brailsford*



PLATE II



REMAINS OF CHAMBERED BARROW ON CORINGDON BALL, FROM THE SOUTH. (*See p. 456*)  
*Ph. J. W. Brailsford*

PLATE III

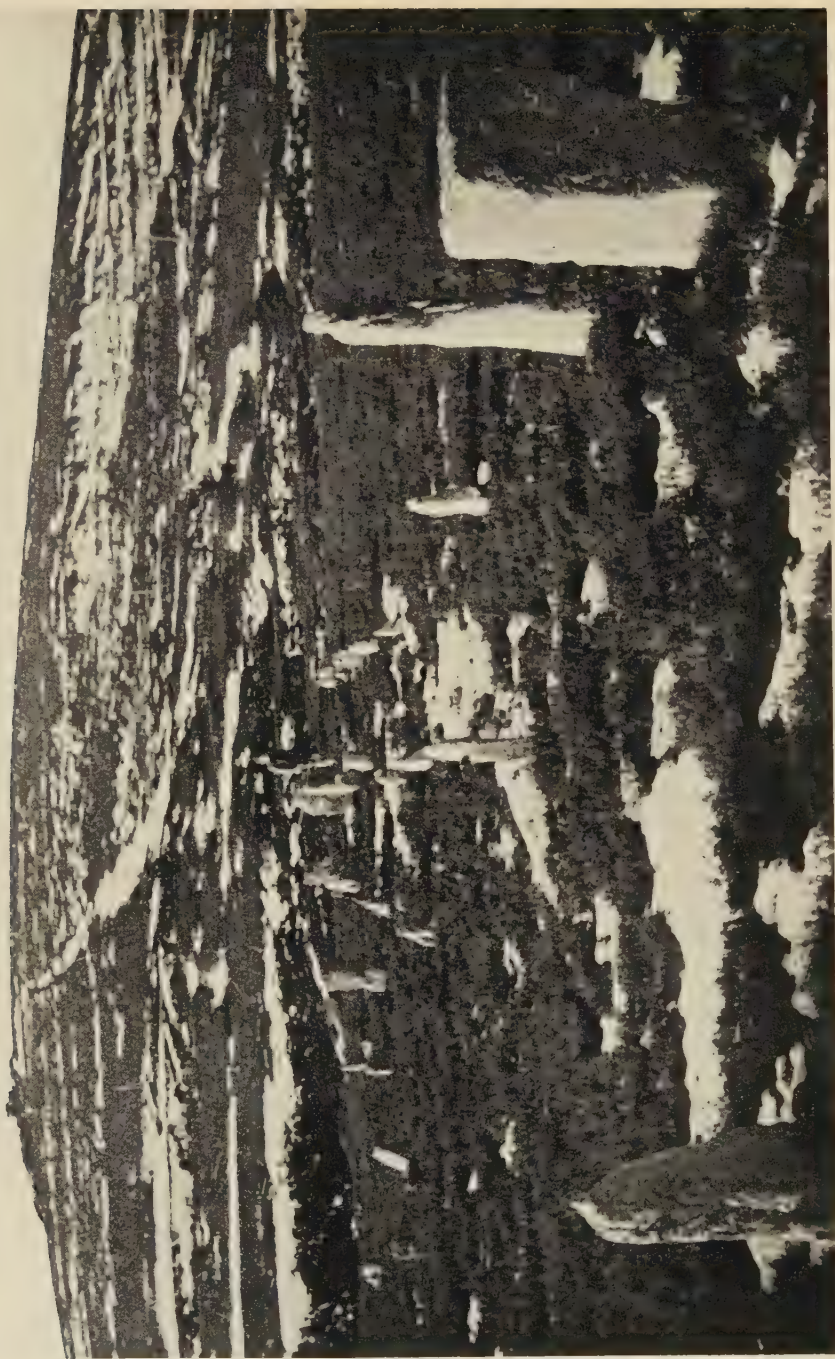


REMAINS OF CHAMBERED BARROW ON CORINGDON BALL, FROM THE SOUTHEAST. (See p. 456)

*Ph. J. W. Brailsford*



PLATE IV



STONE ROWS ON CHALLACOMBE COMMON. (See p. 463)  
*Ph. J. W. Brailsford*



## BRONZE AGE STONE MONUMENTS OF DARTMOOR

map.) They command most of the river-valleys, along which communication between the Moor and the lowlands must pass. They are often situated on a spur at the junction of two streams, so that they command both branches. Altogether they form a fortified frontier zone which completely encircles the Moor. None is found in the interior of the Moor; all are on the extreme edge of the plateau, except White Tor, and that is near the border. Now I think there can be little doubt that these forts were intended to check raiders moving along the river valleys. As far as is known, the Iron Age invaders never settled on the Moor, except possibly at White Tor. Therefore the belt of forts cannot have been to check inroads moving up the valleys, but must have been built by the men of the surrounding country, as a defence against the moor-men. This may be taken to prove the existence of a permanent native population on the Moor at the time of the Iron Age invasions.

We have now completed our survey of the major antiquities which prehistoric man has left on Dartmoor and its confines. I have described a remarkable complex of monuments, which I have attributed to the Bronze Age, without as yet giving the evidence for this dating. This evidence consists mostly of small finds from the settlements and cairns, and a summary only of their nature can be given owing to considerations of space.

A considerable number of hut-circles have been excavated during the last 50 years, and are described in the Proceedings of the Devon Association. Almost every site has yielded flint flakes, knives, scrapers, etc., also 'pot-boilers', and coarse potsherds. Most have produced grinding stones, and smooth 'rubbing stones'.

Other finds include a plano-convex knife, red ochre, slate covers, sling stones, spindle whorls, a whetstone. No metal objects have been recovered. Bone implements were probably in use, but none have been found.

The finds from cairns include arrowheads, a bead (faiënce?), beakers, a bracer, bronze daggers, flint implements, grinding stone, hammer stone, horn button, flint knives, flint scrapers, bronze spearhead, fragments of urns.

The poverty of this list is largely due to the widespread, in fact almost universal, rifling of cairns that has gone on all over the Moor. This process was stimulated by Edward II, who made a grant for the opening of barrows in Devonshire. The making of this grant suggests that objects of some value had been found before that time.

## ANTIQUITY

The scattered finds were bronze celts, a dug-out canoe, bronze ferrules, flint dagger, wooden idol, moulds, palstaves, polished celts, bronze spearheads, stone axe, stone adzes, a bronze sword.

Flint implements (arrow-heads, both barbed and tanged and leaf-shaped, scrapers, etc.) are common on the Moor.

The evidence of the small finds is supplemented by the affinities which we may find for the sepulchral monuments.

The Dartmoor complex, with the exception of the alignments, is almost identical with the great complex which existed all over the Highland Zone of Britain during the greater part of the Bronze Age, though the associated finds are somewhat different. The typical Dartmoor monument of a cairn, with or without cist, enclosed in a circle, is common throughout this area during the Early Bronze Age, and some Scottish examples belong to the Middle Bronze Age. Scottish hut-circles have been shown to belong to the Beaker period, though Childe,<sup>24</sup> considers that at any rate some of the Dartmoor examples belong to the Late Bronze Age, with analogies in Anglesey. Late Bronze Age cremations have been found at the foot of some of the Cornish menhirs.

As regards the alignments themselves, we can find very few datable parallels. A passage-grave on Lewis, which probably dates from the Early Bronze Age or a little earlier, is surrounded by a circle, and connected with eight alignments. The great alignments at Carnac in Brittany are probably to be referred to the earlier part of the Bronze Age, and an example from Caithness was associated with a cist burial containing a beaker.

Let us now consider such of the small finds as afford a more or less secure basis for dating. Much of the pottery is undatable, but has points in common with Bronze Age forms elsewhere. The three beakers form a more reliable criterion, and those from Watern Down and Langcombe Bottom are of late types. Other objects typical of the Beaker complex have also been found, including the bracer from Archerton,<sup>25</sup> the horn button from Fernworthy, the flint dagger from Belstone<sup>26</sup> and the bronze daggers from Fernworthy, Broadhall and Shavercombe Head. The Hameldon dagger<sup>27</sup> probably dates from the close of the Beaker period. The stone implement from Legis Tor is a

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<sup>24</sup> *Bronze Age*, 160, 226.

<sup>25</sup> *PDA*, 1901, p. 135.

<sup>26</sup> *Procs. Devon Arch. Explor. Society*, II, 217.

<sup>27</sup> *PDA*, 1872, p. 554; Evans, 'Ancient Bronze Implements, etc.', p. 228, *Ant. Journ.*, 1937, XVII, 313.

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type common in the Iberian Early Bronze Age. It is of spatulate form, with an incomplete perforation near the broad end. Barbed and tanged arrowheads are fairly common, as well as the more primitive leaf-shaped form, and stone axes of types which commonly occur elsewhere in the Early Bronze Age. It will be seen that a very large proportion of the material, and practically all that from the interior of the Moor, is datable to the Early Bronze Age. When we examine the finds dating from later periods, they are, with very few exceptions, limited to the borders. I have not been able to discover the type of the Moor Barton spear-head, but the hoards of palstaves from Chagford,<sup>28</sup> North Bovey and Bovey Tracey, and the isolated examples from Burleigh Wood and Drewsteignton<sup>29</sup> are probably of the Middle Bronze Age. The socketed celt from Bovey Heathfield is a Late Bronze Age type, it is of a long, narrow form, and rectangular section, and may be of French origin. The Bloodypool spearheads<sup>30</sup> are of the Late Bronze Age barbed type. I have been unable to find the character of the Greenaball sword,<sup>31</sup> but it must belong to the Middle or Late Bronze Age. The ferrules from Bloodypool<sup>32</sup> and Gawlor Bottom (the only reasonably certain find of this period in the interior of the Moor), are almost certainly of the Late Bronze Age. As I have said above, the greater part of the pottery from the cairns and hut-circles is undatable. It is mostly coarse red ware, usually with an expanded or everted rim. Ornament consists of finger-nail and cord impressions, sometimes forming a herring-bone pattern, and slashings. Horizontal grooves and 'festoon' ornament were found on sherds from Grea Tor.<sup>33</sup> 'Comb' ornament also occurs, as on sherds from Legis Tor. The pots are sometimes provided with large lugs or cordons.

There is no evidence whatever for any settlement on Dartmoor during the Iron Age, except for what may be a stray Belgic coin from Princetown. Apart from this, the whole period between the end of the Bronze Age and medieval times is represented only by two hoards of Roman coins, one from near Belstone and one from Furzeleigh, and a small fragment of what may be Saxon pottery from the Blowing-house in Swincombe Bottom. A few post-Roman inscriptions are also known, nearly all from the borders of the moor.

Neither is there any certain trace of human existence on the Moor

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<sup>28</sup> Evans, *Ancient Bronze Implements*, p. 82.

<sup>29</sup> Evans, 86.

<sup>30</sup> Evans, 338, 339, 465.

<sup>31</sup> *PDA*, 1932, p. 387.

<sup>32</sup> Evans, 339

<sup>33</sup> *PDA*, 1897, 156.



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before the Early Bronze Age.\* Yet during the latter period, man appears to have existed there in greater numbers than at any other time before or since, until at any rate medieval times. We must therefore postulate a fairly extensive invasion at the beginning of the Metal Age, possibly stimulated by climatic reasons.

Although there is evidence for the continued existence of a population on Dartmoor at the end of the Bronze Age, we find very few objects on the Moor which can be compared with finds of the Middle and Late Bronze Age elsewhere. It would seem that the unique culture which evolved during the Early Bronze Age persisted, while ever becoming poorer and more degenerate, long after more advanced conditions obtained elsewhere. It can hardly have been before the Iron Age invaders had become established that Dartmoor was depopulated, probably owing to the increasing humidity of the climate.

It now remains to consider the origin of these folk who peopled Dartmoor in the Early Bronze Age. The first step is to find from what direction they came. That they arrived from the North is improbable, as there are hardly any antiquities showing affinity with those which are characteristic of Dartmoor, between Okehampton and the Bristol Channel. This is in spite of the fact that Exmoor (though geologically different) is of the same physical nature as Dartmoor, and must have been equally attractive to the invaders. It is true that there used to be an alignment in the Exmoor district on Maddocks Down,<sup>34</sup> and that one is still in existence at Yelland, near the mouth of the Taw,<sup>35</sup> but these were probably due to a coastal settlement, parallel to but not directly connected with that of Dartmoor. Moreover, if the settlers had approached Dartmoor from the North, they would almost certainly have come up the valleys of the Torridge and Taw, and left abundant traces around the head-waters of these rivers. But this district, except for the Eastern part, which is near the Upper Teign, is, of all the regions of Dartmoor, that which shows the fewest traces of prehistoric occupation.

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\* Miss Barbara Shaw, of Wimborne, has recently discovered a microlithic site at Ringhill, near Postbridge. This consists of an occupation layer, containing charcoal and a hearth, and has yielded micro-burins, microliths, and cores of the type usually associated with a microlithic industry. Implements of later types have been found on the same site. I am indebted to Miss Shaw, for allowing me to print this hitherto unpublished information, and to Dr Clark, who first told me of the site.

<sup>34</sup> Westcote, *View of Devonshire*, 1630, p. 90; *V.C.H. Devonshire*, I, p. 370.

<sup>35</sup> *Proc. Devon A.E.S.* I, 201.

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At first sight a Western origin seems not unplausible. The Bronze Age culture of Dartmoor has many points in common with that of the Cornish moorlands. However, the alignments, which form such an essential feature of the Dartmoor complex, are absent from the east Cornish moors, and only one, near St. Columb Major, is known from the whole county. The Cornish stone circles seem to be of a slightly different type to those on Dartmoor, as they are larger, frequently composed of dressed stones, and commonly have a central menhir. The circle known as the 'Stripple Stones' seems to be a 'Henge', with bank, ditch and well defined entrance. Another important difference is the almost complete absence of the Beaker culture in Cornwall, whereas Dartmoor seems to form something of a focus for it.<sup>36</sup> Conversely, the typical Cornish cinerary urns are not found on Dartmoor.

There seems to be sufficient disparity between the archaeological material of Dartmoor and Cornwall to obviate any possibility of the Bronze Age culture of the former originating in the latter region. At the same time the two areas seem to have features in common which are not apparent elsewhere in Britain, such as the practice of cremation throughout the Bronze Age. These must be explained by at any rate a partial community of origin for both cultures.

The headwaters of the rivers which flow from Dartmoor to the south and east present a marked contrast to the northwestern section. There is a high concentration of antiquities in the Erme Valley, on the Upper Plym and Walkham, between the East and West Dart, and round the sources of the South Teign, the Wallabrook and the Bovey. This distribution strongly suggests that the folk of the hut-circles came from the South. The evidence for a southern origin given by the distribution of settlement is supported by the fact that the only other area in Europe where alignments are at all common, besides Dartmoor, is the Carnac district in Brittany. Stone rows, besides those already quoted, do, it is true, occur in Caithness, possibly near Shap,<sup>37</sup> and at a few other sites in the British Isles; but these are probably all sporadic examples derived from the same source as those on Dartmoor, *i.e.* Brittany. The two examples named above are very similar to the Dartmoor rows; that at Shap appears to have been connected with sepulchral remains, while one in Caithness,<sup>38</sup> was

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<sup>36</sup> Fox, *Personality of Britain*, Pl. II.

<sup>37</sup> *Rude Stone Monuments*, p. 129; Camden's 'Britannia' (ed. Gough), III, p. 401.

<sup>38</sup> *Rude Stone Monuments*, 529.

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associated with a cist containing a cremation. The use of cremation from the beginning of the Bronze Age would also suggest Breton influence, though not necessarily direct; a Breton type which does, however, also occur in southeast England, is the Archerton bracer. The stone implement from Legis Tor has affinities with Iberia. The Hameldon dagger and its pommel have partial parallels in Brittany, but Piggott considers that this type, ornamented with small gold pins, was manufactured in Wessex.<sup>39</sup> The Hameldon cairn, with stone kerb and menhir on the summit, may have Breton affinities, and two barrows of similar type have recently been excavated in Glamorgan. That at Breach Farm contained objects of Breton, or related Wessex, origin.<sup>40</sup>

So far we have seen that the Dartmoor Bronze Age culture is of a general Western type, though the presence of alignments seems to give evidence of direct contacts with Brittany.

When we come to consider the beakers, we find evidence of an element coming from southeast England. There are at least four of these vessels from Dartmoor, a remarkable number in view of their rarity in the Cornish peninsula, and the poverty of the Dartmoor Bronze Age. Moreover in view of the widespread rifling of cairns this number may be only a fraction of the original total. The presence of all these beakers can hardly be due to chance contacts. They were all found near the headwaters of rivers flowing to the south or east; and do seem to represent a definite coastal contact, either ethnic or by trade, with the Early Bronze Age of the rest of southern England. The horn button from Fernworthy, and the Belstone flint dagger, support the evidence of the beakers. The fact that at least three of these beakers were found with cremations is against the hypothesis of an actual westward migration of the beaker folk, though perhaps at the time when the settlement of Dartmoor took place, the older custom of inhumation was losing its hold.

The most we can say at present is that two elements seem to have combined to form the Bronze Age of Dartmoor. One came direct oversea from Brittany, and the other, possibly carrying indirect Breton influence, was carried along the coast and up the river valleys from southeastern England. The former movement may be regarded as parallel to those which Piggott has recently shown to have taken place between Brittany and Wessex in the Early Bronze Age.<sup>39</sup>

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<sup>39</sup> Piggott, *Proc. Prehistoric Soc.* New ser., 1938, IV, 52 ff.

<sup>40</sup> For details and further parallels see P.P.S. New ser., 1938, IV, 107. See also 1937, III, 457.



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The reader is advised to consult the Ordnance Survey 'Tourist Map of Dartmoor', scale 1 inch to mile (paper, flat, 2s; mounted and folded, 3s; mounted and folded in sections, 4s 6d). The archaeology of this area has recently been revised, and the map redrawn (5th edition). The antiquities on Dartmoor are so thick on the ground that a text-map is out of the question here. For special sites and areas the 6-inch maps should be consulted; index-maps and information can be obtained from the Director General, Ordnance Survey Office, Southampton (So'ton 5181).

In conclusion, I should like to record my thanks to Mr Stuart Piggott for much useful information and advice, and to Mr M. J. Kidner, whose long-suffering assistance in the field has been invaluable.

### NOTE

The affinity between the alignments of Dartmoor and those of Carnac is shown, apart from their obvious general resemblance, by a specific feature, which occurs in the Challacombe rows (FIG. 5 and PLATE IV). This is the large transverse menhir, which is not terminal, but inserted in the row, marking the position of a structure at the side. Similar examples occur in the Kermario alignments, near Carnac.<sup>41</sup>

### STONE ROWS, ETC; CHALLACOMBE.

The extremities of the rows, especially at the southern end, are largely destroyed, and are here restored conjecturally.

0 10 20 30 40



FIG. 5

<sup>41</sup> Miln, *Archaeological Researches at Carnac, etc.*, 1881, pp. 59-60, 71.

# The Modern Pottery Trade in the Aegean

by STANLEY CASSON

ARCHAEOLOGISTS in general and students of ceramics in particular largely live in an ancient world of their own creation. They have built up the background of the period they study by means of the material objects available to them, and they have filled in the gaps largely by hypothesis, analogy and guesswork. This, after all, is part of the game. They have decided that they have no alternative. Rarely and with caution they draw comparisons between living and dead primitive cultures. Usually they draw back in alarm, for aboriginal Australians and Bushmen have the irritating habit of not always coming up to the desired level of similarity when comparisons are made between them and men of Neolithic or earlier cultures. And so the archaeologists are driven in on themselves. Perhaps it is just as well.

But since archaeologists are by nature and origin academic, except for a few rare spirits like Boucher de Perthes or Benjamin Harrison, they tend to create from the material archaeological remains which they study a world which, here and there, may be ever so little out of touch with reality. In the study of ceramics this is especially evident. The survival of pots and potsherds on ancient sites, and the organization of their study almost into a science, has given an importance to pottery which far exceeds that given to any other material. For pottery is the material which illustrates the life and history of an ordinary simple community. And so the great quasi-science of Ceramic has been built up. The branches of this study are numerous. There are those who study the technique of pottery manufacture, one of the most instructive and useful of all. There is the comparative study of pottery by which conclusions as to the diffusion of cultures and the interchange of commodities can be established. There is the study of pottery as an art, that is to say as the deliberate creation by the potter of objects of beauty as well as of use, a rare event in the history of ceramic. There is the study of the morphology and the design of pottery and that of the style of the decoration. There is even the study of the derivation of pottery shapes from shapes in other material, the dependence of ceramic on

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wares originally made of stone, leather, basket-ware or wood. But one aspect of ceramic seems to me to have received slight attention. I know of almost no literature or research which deals with the *economic* aspect of pot-making. What answers for instance can be given to the questions :—

How was the making of pottery at certain periods and in certain places organized ?

When pottery has ceased to be merely one of many domestic crafts carried on by the family unit, what types of people control its manufacture and output ?

Once the archaeologist has identified a definite *fabric*, which has a reputation for excellence that reaches beyond its place of manufacture, what does he know of the methods of its distribution, manufacture, sale and export ?

Once pottery has become an object of commerce as such and is not manufactured for home consumption only—once, that is to say, there has been made a surplus of pots—by what streams of commerce does it find its way into the hands of alien customers ?

Here, I think, most archaeologists will agree is a group of questions which have only on very rare occasions been answered.

Kiln-evidence, which is notoriously rare, tells us a good deal, when it is available, as to the actual processes of firing, all useful technical knowledge. But kiln-evidence does not tell us much about the primary processes of manufacture, and almost nothing about the organization requisite for making and selling.

When pottery was made was it made by individuals working in their own homes or by organizations which might be called factories, where the division of labour was properly established ?

Fabrics, as such, by their distribution, tell us much about the streams of general commerce, but we have almost no knowledge as to the detailed manner in which pottery was conveyed, on land and on sea. Slowly, with some well-known fabrics, like the various 'Samian' wares, or like Attic Black- and Red-figure ware, we can reconstruct in some detail the operations of the factories and studios that produced them. Proto-Corinthian and Corinthian wares are wares about which we know almost everything there is to know, except the manner of their distribution and the organizations that produced them.

From our wide ignorance we are often led to make assumptions which seem so obvious that their truth is never challenged. Thus if a



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type of pottery known to have been made in one place is found in smaller quantities in another it is generally assumed that it was exported ready made from the former to the latter. This is assumption pure and simple. If a type of pottery made of a peculiar and distinctive clay is found in one place in large quantities, its occurrence at another place in smaller quantities is assumed to be due to exportation of the pottery ready made. Another assumption.

No doubt many, if not all these assumptions are perfectly correct. But it would be wiser to treat them as assumptions. For they are so often stated as proved facts, which none of them is.

Hints of the danger of translating assumptions into facts has recently been brought home to me by an examination, all too cursory, of the way in which modern pottery fabrics are made and distributed in the Aegean and the Levant.

The economic condition of peasant and small-town life in the Aegean, particularly among the islands, hardly differs in simplicity or complexity from what it was either in the Bronze Age or in Classical Greek times. The average islander and coast-dweller still lives on the same food, and in similar houses to those of his ancestors. Modern communications have left him relatively unaffected. Local steamships bring newspapers, bulk merchandise, machinery, building material and visitors. But the main objects of food and necessity are still conveyed by the many thousands of small sailing vessels, caiques, barques, brigs and even small boats handled by two or three men. The numerous harbours of the Greek and Turkish coasts and islands are still considered as places for the sale and purchase of commodities as well as for the docking of ships. In this they contrast completely with the harbours of countries like France, Italy, Spain and Western Europe as a whole, where harbours are never also markets. In the Aegean islands every harbour is a market.

Among the many commodities which are dealt with in this age-old manner pottery is one of the most prominent. Its bulk and weight, which contrast with the very low prices paid for it, by comparison with other merchandise, make it difficult for the manufacturers to send it by steamship, because of the high freightage charges. It therefore falls to the fleets of small sailing ships, for the most part, to convey pottery from the maker to the buyer. In any island harbour the visitor will almost always see at least one caique moored with its bows or stern to the quay, and on the quay spread out invitingly the various pottery wares which the ship has come to sell retail to the inhabitants. It is

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always a pleasant sight and an interesting one. Here at any rate, is a possible answer to one of my questions. Where the economy and mode of life has changed so little it seems at least probable that methods of sale have altered little. I see no reason why one cannot make a fairly safe assumption to the effect that ancient fabrics in the Bronze Age and Classical Greece were distributed and sold in the same way. Whether the same assumption can be made for regions outside the Aegean and Levant is another matter. In any case it would be less safe to assume. Quayside sales are an essential part of the sale of modern Greek fabrics. This is certain.

Further examination as to the method of manufacture of modern fabrics leads to quite surprising results. But the paucity of research is astonishing. Almost nothing has been done to ascertain the way in which the modern Greek potter works. I know of only two places where any results have been obtained. In Cyprus, where life pursues a daily economy which is closer to that of antiquity than in almost any other place in the Eastern Mediterranean, the makers of pottery form a specialized class in the community. The vessels they make follow more closely the forms of the Bronze Age than in any other Greek region (PLATE I). It is certain that an ancient ceramic tradition both in shape and in methods of manufacture and distribution is strong in the island. The commonest water-vessel, shown here in the plate, has the typical gourd-form of the usual Cypriot Bronze Age pottery. Its clay and its limited decoration round the neck are also Bronze Age in type. The vessel is made to stand on soft earth, or else in a frame, and so has no base. The majority of the Bronze Age wares resemble it in this.

Cypriot potters are not all town and village dwellers, devoted to a sedentary occupation. Some of them are itinerant and nomadic. They will set out with their donkeys and with a load of pots for sale. They will also convey with them a consignment of wet clay. Arrived in a village they will sell pots ready made and also make pottery to commission. They will even mend damaged pots and partly remake others. They work on the spot and then move on. The transport of clay from the region where it is found to another where it is not is a fact of prime importance to archaeologists. I prefer to state the fact rather than to point to its implications.

Potters of this kind in Cyprus form a specialized type of worker and differ from the sedentary potter of the small towns and villages. I am indebted to Mr A. C. Indianos of Nicosia for this information.

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For Crete a very valuable article<sup>1</sup> by the late Stephanos Xanthoudides gives us the most detailed particulars. He describes in particular the organization of the modern potters of the village of Thrapsanos. These potters form a band in which each member has his own specialized job, though there are other jobs in which several men take part, as in the kneading of clay. Each member of the band has his own donkey and the band as a whole begins its travels about the middle of May and returns in the first ten days of August. Then they revert to their ordinary agricultural occupations for the rest of the year, using the money they have gained by their side-line in pot-making. But they are sedentary as well as nomadic, for they have their own kilns at Thrapsanos where they make pots no doubt for themselves and the immediate neighbourhood. M. Xanthoudides shows in great detail and with many acute observations how the manner in which they make *pithoi* is identical with that in which the Bronze Age Minoan *pithoi* were made. This is not relevant to the matters which I am now discussing except in so far as it illustrates how persistent and long-standing are ceramic traditions in the Aegean. The discovery of certain discs of Minoan fabric first suggested to M. Xanthoudides a comparison with modern discs of the same kind. He was thus able to find out that the Minoan discs were an essential part of a form of slow-wheel for the making of *pithoi*. This was clearly a most valuable discovery. He illustrates his article with illuminating photographs.

In these Cretan bands the maker of *pithoi* is the master-potter of the group. For while the group makes pottery of all kinds, the making of *pithoi* is considered the branch of the pot-maker's art calling for the highest skill. This master potter, who is called the μάστορας or πρωτομάστορας, makes about ten *pithoi* in a day. The master potter, when at this work, is also called the πιθαράς. His assistant who feeds his wheel with the clay is called the τροχάρης. His second-in-command is called the σοτομάστορας. He makes vessels of other types. The official name of the master potter appears to be of Byzantine origin, that of his second-in-command to be Venetian, or partly Venetian. This testifies to a certain antiquity even in the technical terminology, though the technique is vastly older.

These small gleanings of facts concern the manufacture of the simpler and more primitive wares for peasants and villagers only. Into this world of self-supporting ceramists there intrudes the wider world

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<sup>1</sup> *Essays in Aegean Archaeology* (Oxford, 1927), 'Some Minoan potter's wheel discs', p. III.



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of organized manufacture, which uses the fleet of small ships for its commerce, and yet still retains its antique character. The self-sufficient trade in local wares in Crete and Cyprus corresponds more to the manner of the Bronze Age of Greece before the mass-production period heralded by the making of Mycenaean wares. But the wider trade by sea of the main modern fabrics resembles more closely either the Late Bronze Age of 1400–1200 B.C. or the full Classical Greek period.

The main centres of modern production, as far as I can ascertain the facts, are as follows.

Chalkis in Euboea is today the greatest exporter of general ornamental pottery in Greece. Chalcidian wares are all alike. They have the common quality of being the very decadent descendants of the latest of the Byzantine wares. The bowls and jugs of Byzantine manufacture, made as late as the 17th and 18th century in Greek centres, almost all favour a poor but vivid green glaze as the only decoration. The cruder the ware the more the glaze is splashed and run over the surface without any design or decoration properly so called. The purpose of this glaze is to make the pottery non-porous. The secrets, if such they can be called, of the craft appear to have survived mainly in Chalkis. In form the vessels made cover an enormous field. Tall one-handled jugs for water with flat bases, plates, cups, fruit-stands, and a profusion of oddments like salt-cellar and coffee cups are turned out at Chalkis. Pleasant bowls and rectangular palm-pots are also interesting, for in some cases the glaze is pink or red and upon it is put in *appliqué* from moulds, small flowers, to relieve the otherwise plain field. These vessels appear to be inspired by that now almost extinct fashion of design commonly seen in Nauplia and Athens, which is derivative from that phase of Greek art which can best be described as the 'Victorian-Bavarian', of the time of King Otto. One can still see its remnants in certain side-streets in Athens and more extensively in Nauplia, where a flavour of Victorian flower-urns and pilasters still pervades house and garden. This Chalcidian ware is certainly dependent on that particular phase of art.

The wares of Chalkis, mostly with the green glaze, are seen on every quay-side and in the shelves of every café and grocer's shop in Greece. The factories have an enormous output. But the wares are undistinguished and unattractive. Nevertheless they have a vogue.

Samos seems to me to be one of the more interesting centres. Its pottery has a limited distribution among the islands. On the quayside and in the pottery shops at Rhodes, while the bulk of the wares were

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Chalcidian, there was also much from Samos. The best Samian wares are glazed, but do not follow any Byzantine tradition. One fine cup (PLATE II, 1), or drinking-mug, shows an excellent form and attractive design. The clay, as in all Samian wares, is compact and red, but the glaze-slip is a fine white and the rough design is in blue and rose. It is a decadent form of the classical *guilloche*. A plate with the same white slip overlaid with a rough design in tomato red (PLATE III, 1) is a standard ware of Samos. Less usual are the delightful yaourti-dishes (PLATE III, 2) made of firm dull-red paste, glazed over with a deep tomato red glaze and overpainted in white slip with the name ΣΑΜΟΣ, the name of the chief town of Samos, Vathy—ΒΑΘΥ, and the letters Μ Β which I take to be the maker's initials. These dishes are standard wares for use by Samians and in no sense made for export or for tourists. The jug (PLATE III, 2, right) is of the same colour and type as the yaourti-dish, and therefore probably of Samian origin. It was bought in Athens.

Samian wares are among the best of the island wares and the most durable. They constitute a strong rival to Chalcidian. I have bought Samian wares in Santorin and I think they are obtainable at Melos.

Another centre of production is the island of Siphnos. The principal pottery-making centre at Siphnos is at a place called Platyalos on the south-east corner of the island. Here are all the kilns and a community of potters but no village properly so-called. There is a safe anchorage for caiques at this place. Here a dark unglazed clay is used to make very simple peasant vessels. It has a small distribution and I have only succeeded in finding it on sale at Santorin. Siphnos specializes in those necessary and interesting vessels the chafing dish or incense-burner (for it can be used for either purpose), and in the ordinary casserole for cooking. The example of a chafing dish shown here (PLATE IV, 2) is of dull red clay, built in the manner of Byzantine vessels of the same kind (of which some splendid examples have recently been found by the American excavators in the Agora at Athens).<sup>2</sup> The vessel has a hollow stem above which is the inner dish, pierced with slits. The stem has had cut out of it a triangular hole for the insertion of charcoal. The heat from the charcoal, generated by the draught, heats or burns what is placed in the receptacle above it. I am informed that Siphnian potters, like Cypriots, are nomadic. Being islanders they carry out their ceramic visitations by sea, and load into their ships

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<sup>2</sup> *Hesperia*, vol. VII, no. 3, 1938, p. 457, fig. 19 B.I. and fig. 22.

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not only their wares but also their clay, in order to manufacture to commission.<sup>3</sup>

By far the most interesting centre of production is the island of Skyros in the northern Sporades. Here a very refined tradition of ceramic has existed for several centuries. The vessels made are mainly jugs, bowls and drinking mugs. The latter, of a barrel-shape (PLATE II, 2), is one of the best Skyriot forms. All the wares, without exception, are unglazed and porous. The most remarkable thing about them is their design. It consists of a pattern in thick dead white slip made of chalk, which is painted on by brush with great care. The designs are mainly geometric and recall many designs of the Greek Geometric period. But the white slip is of bad quality and, unlike the Samian white glaze-slip, is apt to wear off through use or age. Among the designs fish and flowers are most prominent. These seem to be derived from the lovely embroideries for which Skyros has long been famous. Indeed Skyriot embroidery alone among Greek embroideries employs human figures, ships and scenes from daily life as designs. The interaction of the two crafts is obvious. The drinking mug shown here is typical and not exceptional. They are made by the hundred and sold for a few pence apiece. Their porousness keeps the drink in them cold. They are the usual drinking vessel in every Skyriot café and restaurant.

In the white designs employed on Skyriot pottery one can detect the influence of Turkish art. And the Skyriots are thought to have emigrated from Thrace some three centuries ago<sup>4</sup> to the island. In Thrace they would have come under Turkish artistic influences. Certainly their love of flower designs and of fish can be related to sixteenth-century Turkish decoration.

Skyros has in recent times been largely spoiled by attracting the attention of Athenian folk-lore and folk-art enthusiasts. But even they have not affected its pottery, though they have taught the Skyriots

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<sup>3</sup> I am informed by Mr D. W. S. Hunt, Fellow of Magdalen College, to whom some of the information about Siphnos is due, that he has seen a caique of 13 tons displacement take on a cargo of Siphnian pots for Chios and Santorin. The same boat on another occasion took pottery to Megara and returned with rezinato wine, and again to Santorin for a similar exchange of cargo. The range of the boat was not great but it had been also to Mykonos and once to Salonika.

<sup>4</sup> Prof. R. M. Dawkins, *Journal of Hellenic Studies*, xxvi, 205. The ancestors of the present Skyriots are here shown to have migrated from Thrace to the island after its depopulation by the Venetian Foscolo who transported the original inhabitants to Corfu in 1645. The new emigrants brought with them a northern mode of embroidery design and certain peculiar pagan festivals which survive today in Thrace.



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how to mass-produce the mulberry-wood furniture for which the island is famous as well as to revive in sickly form the embroidery which had virtually died a natural death a generation or more ago. I have visited the island several times and on my last visit noted with some alarm that a local enthusiast had invented a wholly new style of pottery, as odious as it was bogus, decorated with unfired designs in oil-paint, made for sale to tourists only. It is as well to note this lest visitors should be lured into thinking it to be autochthonous. The red wares with white slip are the only wares made on the island that are genuinely native.

Skyriot wares are hardly exported at all, except to Athens for the benefit of the folk-art enthusiasts. I have never met them outside the island except at the little town of Kyme on the east coast of Euboea opposite Skyros. Here it is natural to expect them, for Kyme is the nearest mainland town to the island.

Corfu is a large producing centre but its wares do not spread so widely as those of Chalkis. Corfiot wares are glazed and not unlike Chalcidian but usually of more harmonious colours. I have seen them in Myconos, side by side with Chalcidian, and they are common in the shops of Athens.

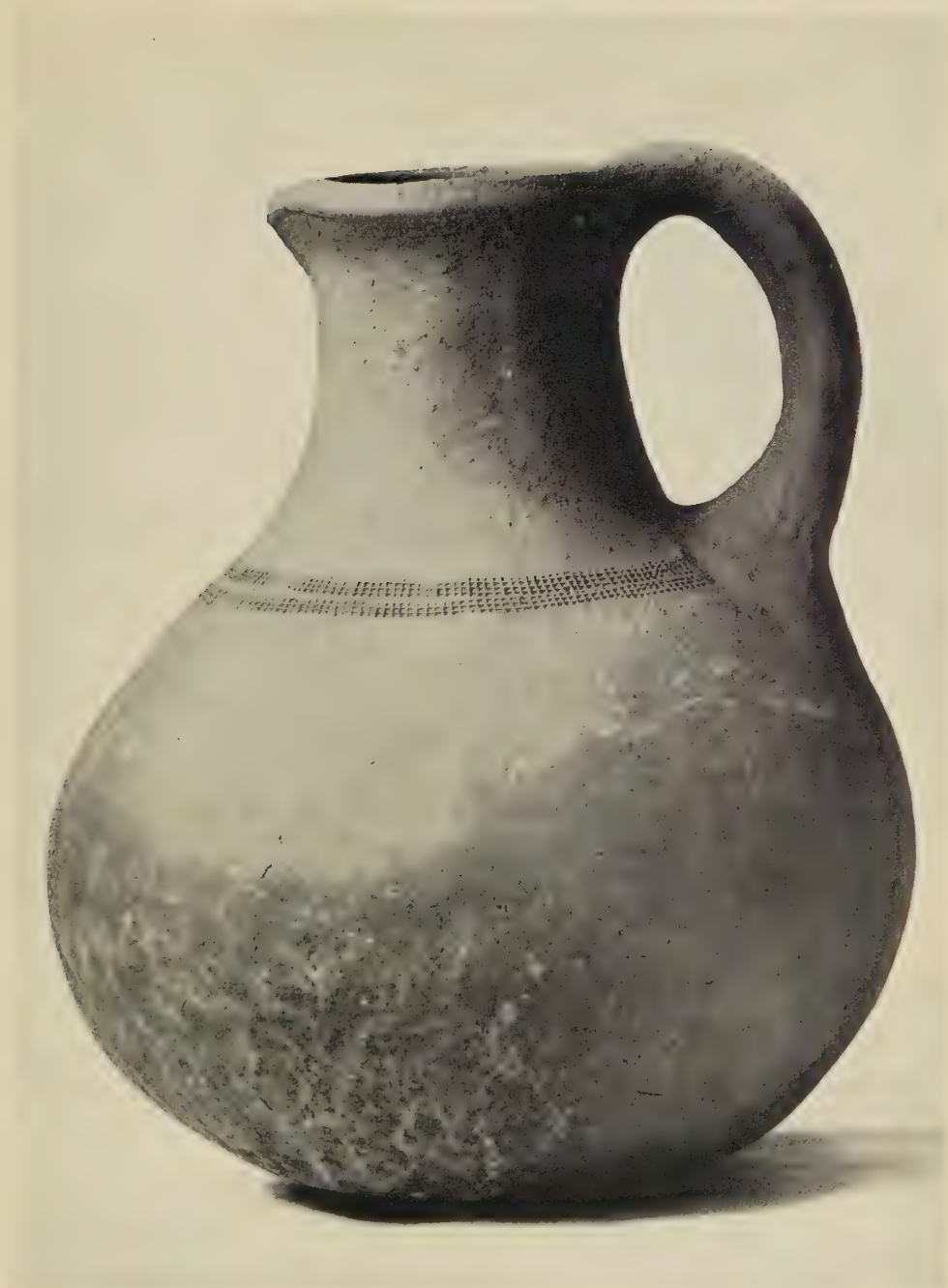
Cyprus is a rich centre of production, but its wares are not exported at all to the Aegean. The Cypriot water jug (PLATE I) shown here is the commonest vessel made in the island and the most typical. The glazed wares are derivative from Turkish and Byzantine and demand a special study to themselves. They are all of very high quality. But Cyprus now, as always, lives apart from the rest of the Greek world.

For Asia Minor and the Turkish region the great centre is Čanak-kalé in the Dardanelles. Here the lingering recollection of a debased Byzantine style (for which the port was long famous down to as late as the 18th century) has led to the growth of potteries which can be said, without any reservation, to be among the worst in Europe. Bad glaze, usually of the 'marbled' type common in the decadent Byzantine age<sup>5</sup> badly applied, hopeless form and faulty firing combine to produce what are complete atrocities. In the hands of some of the more imaginative Čanak ceramists the most amazing ceramic *tours de force* are built up—great water jugs in which animal heads and bodies, human heads and writhing natural forms combine as external applied decoration to make 'works of art' which bring joy to many an Anatolian home but which would disgrace a Margate parlour. Simple Turkish peasants save up

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<sup>5</sup> D. Talbot Rice ; *Byzantine glazed pottery*, p. 48.

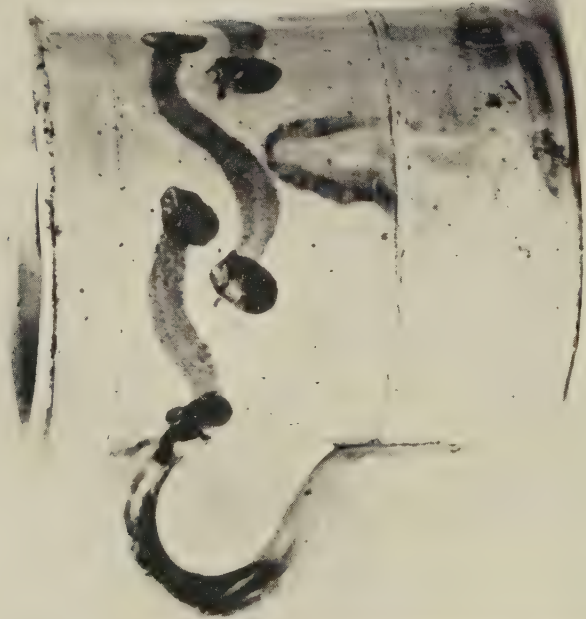
PLATE I



CYPRIOT WATER-JAR (BOUGHT IN NICOSIA) WITH TYPICAL SHAPE AND DECORATION  
OF CYPRIOT BRONZE AGE POTTERY. (See p. 467)

*facing p. 472*

PLATE II



1. SAMIAN MUG ; 2. BARREL-SHAPED SKYRIOT MUG. (See pp. 470-1)



PLATE III

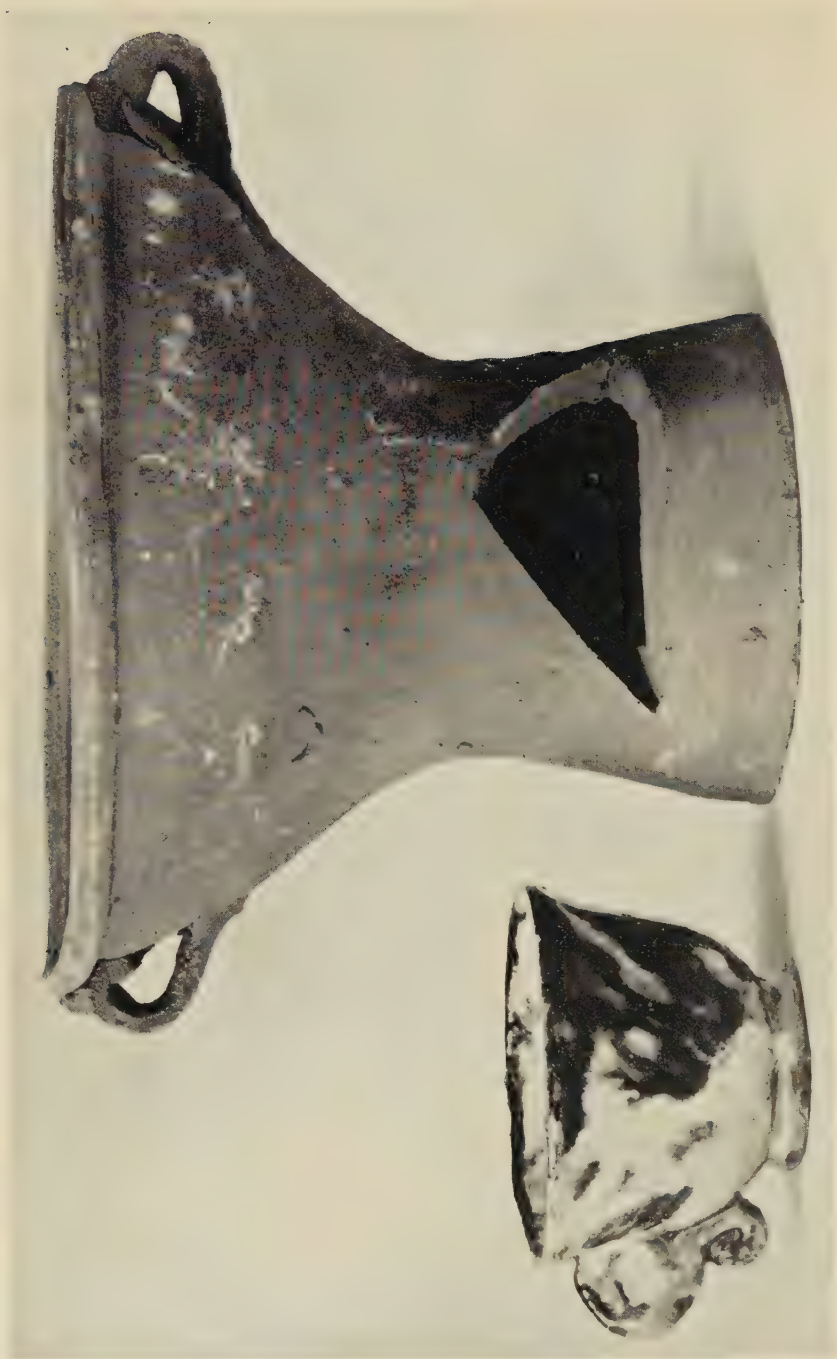


1, SAMIAN PLATE WITH DESIGN IN TOMATO RED ON WHITE. (*See p. 470*)



2, SAMIAN YAOURTI-DISH (left) AND JUG. (*See p. 470*)

PLATE IV



1, COFFEE-CUP, ÇANAK KALE. (See p. 473) ; 2, SIPHNIAN CHAFING-DISH. (See p. 470)

## THE MODERN POTTERY TRADE IN THE AEGEAN

for years to adorn their mantelpieces with these strange abortions. At Čanak-kalé the art of the ceramist can be said to be seen dying in the extreme agonies of technical collapse. I show only one example here (PLATE IV, 1), a miserable little coffee cup, grossly smeared with a mottled glaze of dull purple, green and sickly white, badly bubbled and unevenly applied. The handle is no more than a worm of clay vilely stuck on. Definitely the Turk has nothing like the sense of form possessed by the Greek.

The above notes are no more than notes. I have made no attempt to investigate the subject in full. But if the facts I have collected may help others to investigate I shall have achieved my purpose. For, as is fairly obvious, much that concerns the study of ancient Ceramic can be illuminated by reference to modern methods and conditions.



## Notes and News

### WALLOP, GUOLLOPUM AND CATGUOLOPH

The Editor of *ANTIQUITY* has referred (vol. v, pp. 236-8) to a much neglected passage in the *Historia Britonum* concerning a 'discordia' or civil war between Guitolinus and Ambrosius fought 'twelve years after the reign of Vortigern' at Guollopum. This locality he identified with some place on the river Wallop, in Hampshire, which he suggested in a footnote might possibly be the 'fontem Galabes in regione Gewisseorum' where, Geoffrey of Monmouth avers, the messengers of Aurelius Ambrosius found Merlin.

In *ANTIQUITY*, VI, 83, he added a note of caution to the effect that the place-name Wallop also occurs in Shropshire. In vol. VII, 479-80 he gave Sir John Rhys's explanation of the word 'Guollopum' (*Y Cymmrodor*, 1905, XVIII, 73, note 1) as a Brythonic adjective not understood by the scribe responsible for the Latin. 'It proves', Rhys continued, 'to have been *guolom* pronounced *guolov*, the exact equivalent of Med. Irish *falum*, Mod. Irish *folamh*, Scot. Gaelic *falamh* 'empty'; compare Welsh *gweili* 'empty', Breton *guollo*, *gulio*. The antiquity of the gloss is suggested also by the use of *pp* as the equivalent to *ph* which is here inexactly used for *v*'. From this Sir John Rhys concluded that the passage in Nennius<sup>1</sup> should be translated 'And from the reign of Vortigern to the civil war of Guitolinus and Ambrosius there are twelve years, which is Empty, that is, Empty of battle'. Faced with this emptiness the Editor did not continue the discussion. It is impossible to believe that a period of twelve years between the fall of Vortigern under the impact of the mutiny of the 'Saxon' foederati and the raids and invasions that followed their success could possibly have been described by any Briton as 'empty of war'. It is, of course, possible to scrap the whole passage as Professor Ferdinand Lot has done in his disappointing study of Nennius and the *Historia Britonum*, where he describes it<sup>2</sup> as an 'allusion to a completely unknown event, doubtless invented'. Such a course, however, involves the rejection *en bloc* of all British and Anglo-Saxon traditions concerning the events of the 5th and 6th centuries in Britain, and throws us back on the

<sup>1</sup> *Hist. Brit.* cap. LXVI.

<sup>2</sup> *Loc. cit.* p. 207. 'Allusion à un événement complètement inconnu, sans doute inventé'.

## NOTES AND NEWS

uninformative Gildas and his 'tract for the times', a commination sermon rather than a history.

Another explanation which I venture to offer appears to me both to preserve the original translation and at the same time to confirm Sir John Rhys's derivation of *Guollopum* and Guest, and the Editor's identification of this place-name with the Hampshire Wallop. For this I am indebted to Mrs K. Bowman, whose family have been long resident at Middle Wallop and are well acquainted with local lore. The river Wallop, a 'chalk stream', ran dry this summer after the spring drought. It has done so only twice in the last 29 years but in several dry summers it has been reduced to a mere trickle of water. The word 'Guollopum' would thus mean 'empty', as Rhys suggested, and the adjective would be applicable to a river which sometimes dried up entirely and was sometimes reduced to a thread in dry years. The last words of the relevant passage in the *Historia Britonum* should therefore be translated—'which is Empty, *i.e.* the Battle of the Empty (river)'.

I am aware that Dr Ekwall derives Wallop<sup>3</sup> from A.S. *Wiell-hop* or *Waell-hop* meaning 'valley of the stream'. But I cannot help feeling that the distinguished philologist's treatment of early British sources has been neglectful on occasion. In this case he makes no mention of the reference in the *Historia Britonum*. Other cases occur to one, *e.g.* the reference to Arthuret without any allusion to the entry in the *Annales Cambriae*, and still more the explanation of the Cumbrian Carwinley as a hybrid between 'Caer' and an Anglo-Saxon name such as Wendla,<sup>4</sup> a derivation that omits all reference to Guendoleu, a chief of fame in early Welsh poetry wherein he is associated with this part of Britain, who also figures in the Harleian genealogies and in the *Vita Merlini* where he is called Guenoleus. It is surely possible that the Shropshire Wallop, or that other Wallop which the Editor believes to be somewhere 'in the Thames Estuary'<sup>5</sup> though he has forgotten its exact location, may be derived from the A.S. *Wiell-hop* and that the similarity of the Hampshire river-name may be merely a coincidence. As for the objection that no exact Welsh parallel to Sir J. Rhys's hypothetical *guolom* (*guolov*) is known, can any one assert that no such form could have been used by the Britons of southern England in the 5th century?

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<sup>3</sup> *Concise Oxford Dictionary of English Place Names*, p. 470.

<sup>4</sup> *ibid.* p. 84.

<sup>5</sup> *ANTIQUITY* VI, 480.

## ANTIQUITY

The other considerations in support of the selection of the Hampshire locality as the scene of the battle which brought Aurelius Ambrosius to the leadership of the Britons may be summed up briefly. Tradition associates Ambrosius with Hampshire, and the derivation of Amesbury from his name seems at least as probable as that which explains it as the Burg of Ambr, an unrecorded personal A-S. name which 'may be postulated on the strength of Ambrosden, Amesbury, Ombersley and OHG Ambricus, Ambrico pers. n'.<sup>6</sup> It is possible that Guitolinus (Lat. Vitalinus) was of the House of Vortigern. The *Hist. Britonum* (c. XLIX) gives Vortigern's father's name as Guitaul (Vitalis) and calls his grandfather Guitolin (Vitalinus) and names 'ran in families', then as now. But whether Guitolinus was or was not of Vortigern's kin he was fighting for the leadership, which Vortigern had lost, and the obvious scene of such a campaign would lie either in that part of southeast Britain which the 'Saxons' had not yet mastered, or in the Severn Valley near Builth from which Vortigern may have come and where his descendants retained local power. Now we know that A-S. tradition claims no conquest of any part of Hampshire before the beginning of the 6th century, *i.e.* a generation after the probable date of 'Catguoloph'. Had the invaders cleared British power from Hampshire by 467 A.D., which seems to be the approximate date of the victory of Ambrosius, the identification of Wallop and 'Guollopum' would be excluded. But they had not. The only rival to the Hampshire Wallop as the scene of 'Catguoloph' is therefore the Shropshire Wallop, and the linguistic evidence is against this identification unless it can be proved that the Shropshire name was applied to a river which ran very low or dried up periodically, an unlikely phenomenon in a district with an abundant rainfall and no chalk. Mr Egerton Phillimore's identification of Wallop with the Voluba of Ptolemy, which he identifies with Golden near Grampound in *Y Cymmrodor* (1892, XI 24-5) is historically improbable. No early tradition connects Ambrosius with Cornwall, nor is that region associated with Vortigern and his house. And the historian might well ask what Ambrosius was doing so far from the main theatre of events.<sup>7</sup> The Hampshire Wallop therefore appears to be identifiable with 'GUOLLOPUM'. PHILIP P. GRAVES.

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<sup>6</sup> *Concise Oxford Dictionary of English Place Names*, p. 9.

<sup>7</sup> If, as the writer supposes, Arthur, after winning fame in the North as a military leader, was hired by various British kings to bring his band of cavalry to their assistance against the Saxons or local rivals, his traditional ubiquity in the region extending from Cornwall to Strathclyde is easily explained.



# HEBRIDEAN SURVIVALS

In the very interesting article upon Hebridean survivals, (ANTIQUITY, September 1938, pp. 261-89) Dr E. C. Curwen might have cited the traditional ballads recording the exploits of the Norse invaders and the Gaelic heroes who resisted them, which still certainly survive in Barra and South Uist, although usually the language of them is now only about half intelligible. They are described and collated by Dr Reidar Th. Christiansen in *The Vikings and the Viking Wars in Irish and Gaelic Tradition* (Oslo, 1931). Dr Christiansen remarks (p. 5) that

‘ the most extraordinary feature of this tradition is its continuity, which is almost unparalleled. It has its source almost as far back as the time of the Vikings themselves, or at least as we know them in Ireland, and it has lived on into our own time. In the old manuscripts legends and songs about the Norsemen are to be found, and down to 1900 the ballads, such as that concerning King Magnus of Norway, were familiar throughout the Isles, where no doubt fragments of this poetry are still known ’.

On the other hand, it is at least doubtful if the ‘ Clan System ’ can be cited as a primitive survival ; the whole popular conception of the Scottish Clan has been seriously challenged by such scholars as Professor Eoin MacNeill and Dr G. A. Hayes-MacCoy, and in any case there are good reasons for thinking that the ‘ Clan System ’, *i.e.* semi-independence of local territorial magnates, only came into existence after the destruction of the centralized government of the lordship (or kingdom) of the Isles. The fact that intelligent Islemen regretted the downfall of the lordship, and were sensible of the evil consequences of it, is attested by the 17th century historian Hugh MacDonald, who says

‘ After the death of Angus (Aonghus Og, assassinated in 1490) the Islanders, and the rest of the Highlanders were let loose, and began to shed one another’s blood. Although Angus kept them in obedience while he was sole lord over them, yet upon his resignation of his rights to the King, all families, his own as well as others, gave themselves up to all sorts of cruelties, which continued for a long time hereafter ’. (*Scott. Hist. Soc.*, 2nd Series, v, 52).

Instigated, one might add, by the policy of King James VI of playing the local magnates off one against the other.

Retrogression, not simple survival, is clearly to be seen here, and one of its consequences upon the cultural life of the people was that the themes of the written literature eventually were reduced to surviving only orally.

J. L. CAMPBELL.

## ANTIQUITY

### CROP-MARK AT PORTCHESTER CASTLE (PLATES I-II)

During a visit to Portchester Castle early in June I observed, from the ground, a very remarkable crop-mark. This consisted of a pair of parallel lines of parched brown grass with offset ' buttresses ' at regular intervals along their outer sides. There was a ' buttress ' at each corner and a brown line across the narrow (northern) end. So plain and distinct were the marks that one almost wondered whether they might not be due to some recent disturbance of the soil. Enquiry on the spot, and subsequently of H.M. Office of Works, the custodians of the site, revealed the fact that the markings were well known, and that they appeared quite regularly in dry weather. At the time of my visit (though a little rain fell that day) there had been a remarkably prolonged drought, lasting almost unbroken for five months.

There can be little doubt that, as had already been concluded, the marks indicate the foundations of a medieval tithe-barn. There is of course a Norman castle in the northeast corner of the Roman fortress, and a fine Norman church in the southwest corner. This is not the place to describe these monuments, which (with the exception of the church) has been done in the Office of Works Guide obtainable on the spot. It will be enough to say that although the core of the outer wall and bastions is undoubtedly Roman, the outer (Roman) facing had already been removed, doubtless by the Norman builders, and then patched up again by them. This accounts for the peculiar and quite un-Roman horse-shoe shape of the bastions.

In addition to the air-photograph, taken by Major Allen (PLATE I), another (PLATE II) was taken on the ground by Dr Bersu, to whom I am indebted for permission to publish it, and also for some of the observations recorded. It seems worth while reproducing this ground-photograph because it shows that, under favourable circumstances, one can sometimes *see* crop-marks as plainly on the ground as from the air. But, although visible, they can only be seen to perfection from the air. Actually the marks were sharp and distinct enough to be planned by tape-measurement on the ground; and in order to have them recorded permanently, I had them specially surveyed. The resulting measurements were plotted on the Office of Works plan, and will be inserted on the next edition of the large scale Ordnance Survey map.

It need hardly be added that the cause of the parching of the grass is the presence of stone foundations immediately below the surface, which restrict the amount of moisture and thus affect the growth of the

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grass. This is a common phenomenon and was well known long before air-photography was possible. One finds observations of it recorded even in the 17th and 18th centuries. Lawns are very susceptible to this form of parching, and the area at Portchester is laid out for tennis-courts. A similar phenomenon is to be observed at the Meteorological Station at Kew, where the foundations of Sheen Priory (so one presumes) have been revealed on a bowling-green and photographed, but unfortunately the photograph was from too great a height.

O.G.S.C.

### CAUSEWAY, TARIK EL JEMIL (PLATE III)

Last August, when flying round the island of Jerba, off the north coast of southern Tunisia, I suddenly observed a causeway which I had seen on the maps during a previous visit, but which neither then nor since have I been able to inspect on the ground. The causeway runs from the mainland near Zarzis across a shallow tidal inlet, some two miles wide at this point, to Jerba, which it reaches at a point not far south of Guellala, the great centre of pot-making, whence amphorae and other vessels are exported to all parts of the adjacent mainland. I have searched in vain for any published account of it; but foreign archaeological publications are notoriously difficult to obtain in the libraries of this country. No doubt somewhere there is to be found a satisfactory description of it. Meanwhile it seems better to publish the accompanying air-photographs (taken with an ordinary Vogtlander camera, size  $2\frac{1}{4}$  in.  $\times$   $3\frac{1}{4}$  in. [ $6 \times 9$  cm.]). They are not good, but the best that could be obtained under the circumstances.

According to Barth the causeway is called Tarik el Jemil (the Camel's Path). From the air it seems to be a stone or rubble causeway, nearly awash. At the point (near the left) where it crosses a deep channel there would seem, from the photograph, to be the remains of some sort of a bridge. On either side are large growths of sea-weed, forming livid green blotches that stand out brilliantly against the chocolate background of the lagoon.

The causeway must surely be of Roman origin, for it is hardly likely that either the Turks or Arabs would have had the art to construct so obviously useful a work. It has not the undeviating straightness usually associated with Roman roads; but the circumstances are exceptional. Roman remains abound on the adjacent mainland coast. Jerba itself was called Meninx and is reputed to be the island of the lotus-eaters. It is now, as no doubt formerly, intensively cultivated



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with palms, olives and corn ; and round its eastern shores are innumerable elaborate fish-traps, consisting of settings of stakes and nets. Along the shore of the mainland a mile or two inland are a number of small square forts, set at regular intervals apart. From the air one could not see enough to decide on their age, but one would imagine that they are medieval or later rather than Roman.

The whole region abounds in interesting remains, not the least being the curious modern vault-shaped houses, best seen in the towns of Medenine and Ben Gardane ; from the air it is apparent that Houmt-souk, the market-town and port of Jerba, consists of a core or nucleus of such buildings, overlaid and partly obscured by later flat-topped buildings of the normal oriental type.

Jerba is little known in this country. Of those to whom I have described it since my return, not one had ever heard of it before. It is practically free from tourists, and those in search of an interesting holiday might do worse than make for Gabes, the nearest place to stay at. During spring and early summer the climate is excellent ; even in August the heat is not by any means unbearable, and the bathing is ideal. A short distance inland, however, away from the sea, the heat becomes very trying. Indeed the town of El Azizia in Tripoli, 150 miles ESE of Jerba, holds the world's record (136° in the shade, 13 September 1932). During January and February the weather is cold and sometimes very rainy. O.G.S.C.

### WATTLE HUTS (PLATE IV)

Dr Cecil Curwen's article in the September number of *ANTIQUITY* describes a primitive type of stone building still in use in the Outer Hebrides and in Skye. That buildings of this material were constructed in prehistoric times in all parts of Great Britain and Ireland is quite certain on archaeological grounds ; we need only cite Skara Brae, Chysauster and the brochs and earth-houses ; and for still earlier time we have the chambered long barrows as evidence that stone was used at any rate for the houses of the dead. In Bede's time, however, building houses of stone was regarded as quite definitely a Roman custom, and it is frequently contrasted with the British and Scottish custom of building houses of wood or wattle. Instances are quoted in Plummer's *Bede* (Oxford, 1896, II, 101-2) and in Reeves's *Adamnan* (Dublin 1857, 106). Many of the earliest churches in Britain were built of wood or wattle ; and there is no evidence that any of the

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monastic buildings in Iona in Columba's time were of stone. That both stone and less durable materials were, however, in contemporary use from the earliest times is archaeologically certain, and is also to be inferred (for a later period) by Bede's description of the stone church at Whithorn (*insolito* Brettonibus more). Perhaps the Roman method implied the shaping of the stone and the use of mortar, as opposed to dry-stone walling ; but this is not stated by the authorities.

In certain parts of England the framework of walls was of timber ; the intervening spaces were filled with mud or clunch sometimes reinforced with wattle hurdles. Many of these ' mud cottages ' still survive, and the lath and plaster technique of East Anglia is merely a variation of it. In Scotland and Ireland it was still in use during the 18th century, but the absence of suitable earth caused turf to be used as a protective covering instead.

Pennant visited Jura in July 1772, and illustrates some round conical huts, which are reproduced on PLATE IV.<sup>1</sup> He has left the following account of the ' sheelins ' :—' Ride along the shore of the Sound [of Islay] : take boat at the ferry, and go a mile more by water : see on the Jura side some sheelins or summer huts for goatherds, who keep here a flock of eighty for the sake of the milk and cheeses. The last are made without salt, which they receive afterwards from the ashes of sea-tang [sea-weed], and the tang itself which the natives lap it in.

' Land on a bank covered with sheelins, the habitations of some peasants who attend the herds of milch cows. These formed a grotesque group ; some were oblong, many conic, and so low that entrance is forbidden, without creeping through the little opening, which has no other door than a faggot of birch twigs, placed there occasionally : they are constructed of branches of trees, covered with sods ; the furniture a bed of heath, placed on a bank of sod ; two blankets and a rug ; some dairy vessels, and above, certain pendent shelves made of basket work, to hold the cheese, the produce of the Summer. In one of the little conic huts, I spied a little infant asleep, under the protection of a faithful dog '. From here Pennant walked across a ' large plain of ground, seemingly improveable, but covered with a deep heath, and perfectly in a state of nature ' ; and ' after a walk of four miles, reach the Paps '.

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<sup>1</sup> *A Tour in Scotland and Voyage to the Hebrides*, 1772, London 1790 ; vol. I, p. 246, plate xv. It is not clear from Pennant's description where exactly these sheelins were situated. They seem to have been on, or not far southwest of, the southern shore of Loch Tarbert.

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Wise<sup>2</sup> describes precisely similar huts used by Irish charcoal-burners. 'The form of these huts', he says, 'probably resembled those still used by the hereditary charcoal burners of the present day, who are required to reside in the forests of Ireland, during most parts of the year, engaged in the preparation of charcoal for gunpowder (fig. 10, not reproduced here). . . . They were built on a rising ground, were ten feet in height and about twelve in diameter; and were constructed of a number of straight branches of trees, the extremities of which were thrust into the ground in a circle, and the other ends fastened in the form of a cone. Over this grass, faggots were placed in a way to overlap each other. These huts had no other opening than the door, which was two feet and a half wide; each accommodating three men, their beds being marked 1, 2, 3, [on his plan], and the floor boarded by dressed logs of wood, a little raised above the ground. At the end of the passage and opposite the door was the fireplace for heating the hut and preparing their food, and . . . spaces for stowing away their personal effects. . . . They burnt charcoal in the fireplace, and were aware of the noxious nature of the "nitrogenous" vapours, which, however, had free egress through the chinks formed by the spaces between the faggots. They were careful, they said, in the selection of a dry elevated place for their huts, as they found it healthy, particularly in the dry season'.

Another, rectangular, type of 'basket-house' was constructed on the west coast of Scotland in the 18th century, and has been described in a manuscript belonging to the Society of Antiquaries of Scotland and now in their library at Edinburgh. It should be observed that the method of 'thatching' the sides with turf is exactly the same as that said above to have been used by the Irish charcoal-burners. The description is as follows:—'From I Columkill I returned again to Mull, and after travelling from the west side to Lettermore on the north-east side I ferried over the sound to Mungastle, from thence I took my road through Ardnamurchan and Moidart to Arasaik. . . . They sow small black oats, four row'd barley, some rye and potatoes, the principal production of the country is black cattle, sheep, goats, butter and cheese, with some small horses. The inhabitants lead miserable lives, both with respect to their food and habitations. The houses in which they live they call basket-houses. The method of building them is this, they first make out both breadth and length of the house,

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<sup>2</sup> *History of Paganism in Caledonia*, London, 1884, xi.



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then drive stakes of wood at nine inches or a foot distance from each other, leaving four or five feet of them above ground, then wattle them up with heath and small branches of wood upon the outside of which they pin on very thin turf, much in the same manner that slates are laid. Alongst the top of these stakes runs a beam which supports the couples and what they call cabers, and this either covered with turf heath, or straw'.<sup>3</sup>

These descriptions may be found useful to excavators who are faced with the problem of reconstructing, from a sometimes bewildering mass of post-holes, the plan and superstructure of prehistoric dwellings.  
O.G.S.C.

### DOLMEN GRAVES IN BULGARIA

South of Bourgas and along the Black Sea is a series of long parallel valleys, divided by thickly wooded ridges. This is the district of Strandja and Stara-Planina, which extends to the banks of the Maritza. Difficult of approach, with poor roads, this district was inaccessible even in ancient times. Rich with the remains of various cultures and very little known to scientific men (owing to the fact that foreign influences could not penetrate it), the Strandja district has retained some of its oldest folk-customs. For instance, the 'Nestinarstvo' (dancing on fire on St. Helen's day) is still practised in Bulgaria.

The Thracians, especially the tribe 'Asti', with its centre at Viza, are the oldest inhabitants of this district of whom we know anything. The Greek colonization began about the 7th century B.C. Their colonies were interspersed among the Thracian settlements. According to Xenophon (*Anabasis*, VII, 5) the Thracians practised piracy. Among other things he notes that those who lived about Thrace divided up the land by means of frontier-posts, and everyone had the right to take possession of the things found on his own piece of land. It is interesting to remember that such a division of the land existed in Bulgaria until 1878, when Bulgaria was freed from the Turks. In the old part of the town of Vassiliko are the remains of a small castle, where resided a pirate family which lived on the booty pillaged from the vessels along the coast.

The Romans did not exert much influence over this district. Strandja was probably able to preserve its first settlers for a long time.

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<sup>3</sup> *Remarks made in a Tour through several of the Western Isles and West Coast of Scotland*, by Mr James Robertson. Read before the Society of Antiquaries of Scotland, 1788. Preserved in volume 2 (fol. 23) of Unpublished Communications.

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With the appearance of the Goths, however, the ethnographical character of the district along the Black Sea coast began to change, and this transformation continued until the beginning of the Slav and Bulgar invasions (6th and 7th centuries).

In Bulgaria dolmens are numerous only in the Strandja mountains, Sakar mountains, and in the eastern Rhodope, and there only where gneiss, from which large slabs can be obtained, is found.

According to certain information dolmens used also to be found in the Balkan and the Sredna Gora mountains, and a few south of the Balkan mountains, but they were all destroyed long since. In excavating these dolmens, the excavators either could not find anything, or did not pay sufficient attention to the remains of pottery—the best evidence for determining the date of these interesting prehistoric monuments. Originally the dolmens were buried under mounds, but in the course of time all the earth and small stones were removed; in some parts they are still encircled by a peristalith, which, made of small and large stones, is sometimes three metres wide, and in the shape of a circle or that of a square. The biggest peristaliths are 10 to 12 metres in diameter, and the smallest are from 2.50 to 5.00 metres.

Practically all these dolmens had been erected on the crests or slopes of small hills, and were usually on non-rocky ground, but often they were adapted to the conditions of the locality. In most cases the foundations were of clay, and only in very rare cases a few flat stones were placed to form the foundation. Usually they are of local material, but some are made of stones brought from a distance. Some were erected on the spot where the stone was quarried. They are made of roughly shaped stone slabs and have single or double chambers. The single-chambered dolmens consist of four large slabs covered by a fifth. Generally these stones are placed in the ground in the form of a square. The two side-stones are a little inclined, and the slab facing the sun has an opening, rectangular below and curved like an arch at the top.

The double-chambered dolmens are relatively larger. They consist of two dissimilar, but attached, chambers, the front chamber being the smaller, and are constructed with great architectural ability. The stones are firmly set in the ground and it seems that great attention was paid to fitting them together. The inner side of the stones is smooth, and in some parts one can even notice straight lines. Before the entrance of the double-chambered dolmens are square-shaped flat stones, which very probably formed something like a corridor. The





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stones vary from 1 to 3.5 metres in length and from 0.25 to 0.50 metres in width. The back chamber is always longer, wider and higher than the front one (*e.g.* back chamber 2.20 metres long—front, 1.50 metres ; back chamber 1.80 metres wide—front, 1.66 metres wide ; back chamber 2.20 metres high—front, 1.80 metres high).

The dolmens mostly face southeast or southwest and those with one chamber are more numerous than those with two. Thus, out of 474 examined, 410 are single-chambered, and only 64 have two chambers.

Practically all the dolmens are mutilated. The preservation of a few is due to certain national beliefs. Thus, the inhabitants of the

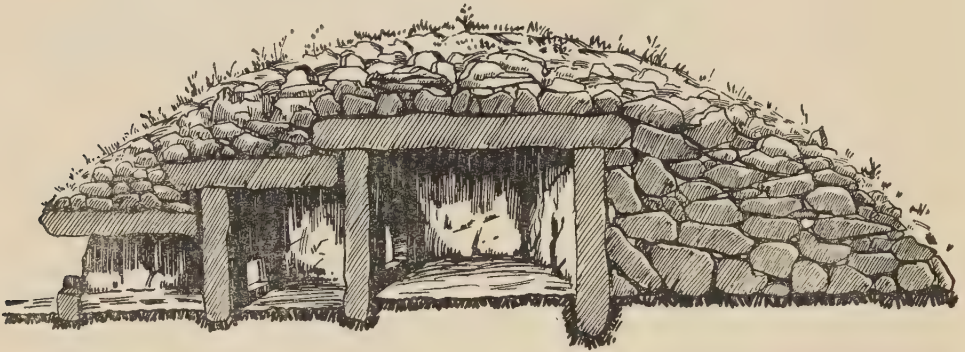


FIG. 2. TYPE OF DOLMEN-GRAVE, STRANDJA PLANINA, BULGARIA

village of Hlebovo believe that fire comes out of the dolmens at night. The inhabitants of Belevren believe that the dolmens were made by dragons—human beings with tails—and that these creatures still live in them, and from time to time come out—a belief which causes the villagers to respect the dolmens. Others believe that they were made by hellens (giants) who walked about entirely naked, and who still live in them. Another belief is that fire comes out of the dolmens once a year, on a definite night, and after going all round the village it returns to its place. Yet another is that each dolmen has its own proprietor.

The dolmen at the village of Bunarchevo has a comparatively large peristalith round it. There the inhabitants gather once a year and drink 'Shara' (grape juice). The priest pours water over the capstone and, after reading a prayer, sprinkles the bystanders with the water. After the ceremony the villagers sit on the stones of the peristalith and eat and drink.

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The bodies of non-baptized babies are buried in the hills around the dolmens.

Most of the half-destroyed dolmens and dolmen-mounds are near the villages of Guerdeme (Hlebovo), Krushevo (Kavuralan), Saranli (Orehovo), and Enia. Thus there are about 95 dolmens round Guerdeme, 47 round Saranli, and 74 round Krushevo.

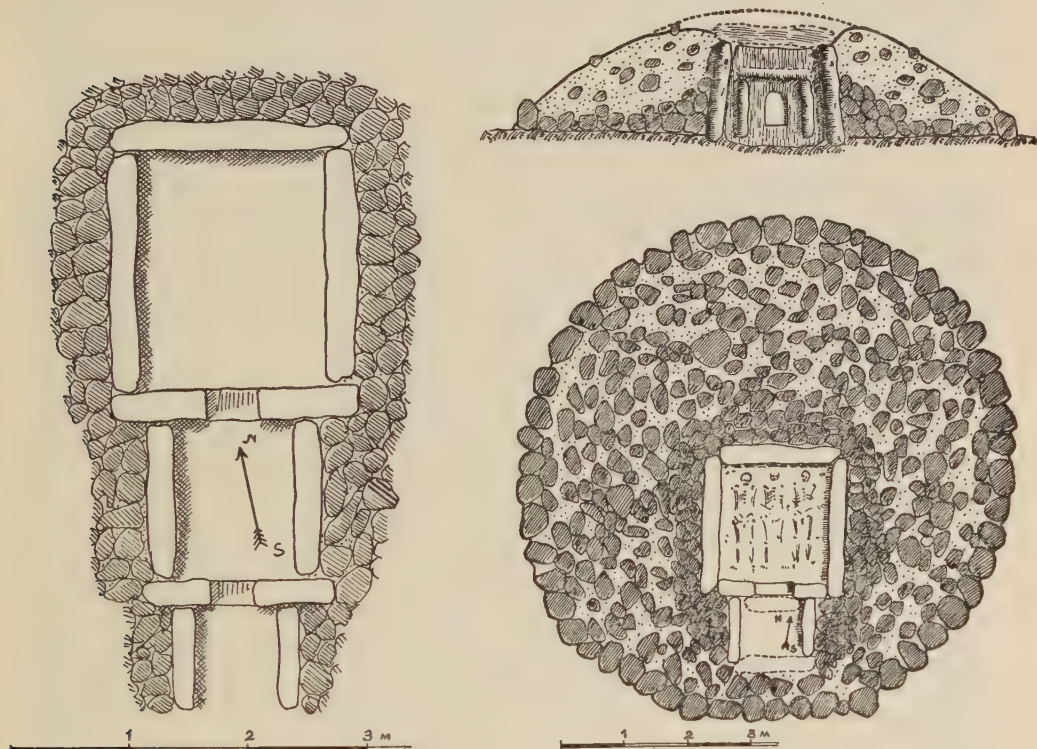


FIG. 3. PLANS AND ELEVATION OF DOLMEN-GRAVE, ENIA, BULGARIA

The keeper of the Prehistoric Department at the National Museum in Sofia, Mr V. Mikoff, has lately studied the remains of the dolmens at Enia, north of Svilengrad and the Maritza river. The highest mound at Enia is 1.40 metres high ; the rest vary from 0.60 to 0.80 metres in height with a diameter of 8 to 16 metres. All the dolmen-mounds here are covered with earth and encircled by peristaliths ; they are single-chambered and have only one corridor. The fragments of hand-made pottery found are from pots made of imperfectly refined

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clay, as a result of which, when baked, they turned a dark grey or dark red colour. Most of the pots had a handle and were decorated in a style known already from other prehistoric sites in Bulgaria.

The remains of three human skeletons, found lying side by side with the sherds of a few pots, were discovered in a dolmen near Enia. All the 78 dolmens found at Enia were situated on the southern slope of the hill.

The Bulgarian dolmens differ from those in some other countries, but they very much resemble those of the Caucasus, dating to the first half of the Bronze Age.<sup>1</sup>

The cultural remains found in great abundance near the dolmens, as well as near Enia, correspond to those found in the South Thracian settlements, the Rhodope and in some villages of north Bulgaria. These date from the 8th to the 6th centuries B.C.

The Bulgarian dolmens are tombs. The Thracians of Sakar, Strandja mountain, and East Rhodope buried their dead in such tombs between the 8th and 6th centuries B.C.

Judging from what we know about these people we find that they could be no other than the well-known Odriz tribe, which about the 5th and 6th centuries B.C. succeeded in uniting many other Thracian tribes into a single group, created a powerful state, and left to us the best monuments of Thracian art.

Finally I wish to mention the dolmen-tomb which was discovered at Mezek,<sup>2</sup> dating to the 4th century B.C. Judging from the district where the latter was discovered, it is thought that its prototype was the dolmen-grave. Another reason for this conclusion is the fact that only at Mezek have tombs with a 'dromos' and chamber been discovered.<sup>3</sup>

IVAN VELKOFF.

*Director of the National Museum, Sofia*

## EXCAVATIONS AT LOUGH GUR, CO. LIMERICK

The third season's excavations at Lough Gur, Co. Limerick, which began in June are still in progress. The excavations are being conducted as part of the Government's Employment Schemes under the supervision of Professor Seán P. Ó Ríordáin, assisted by other archaeologists.

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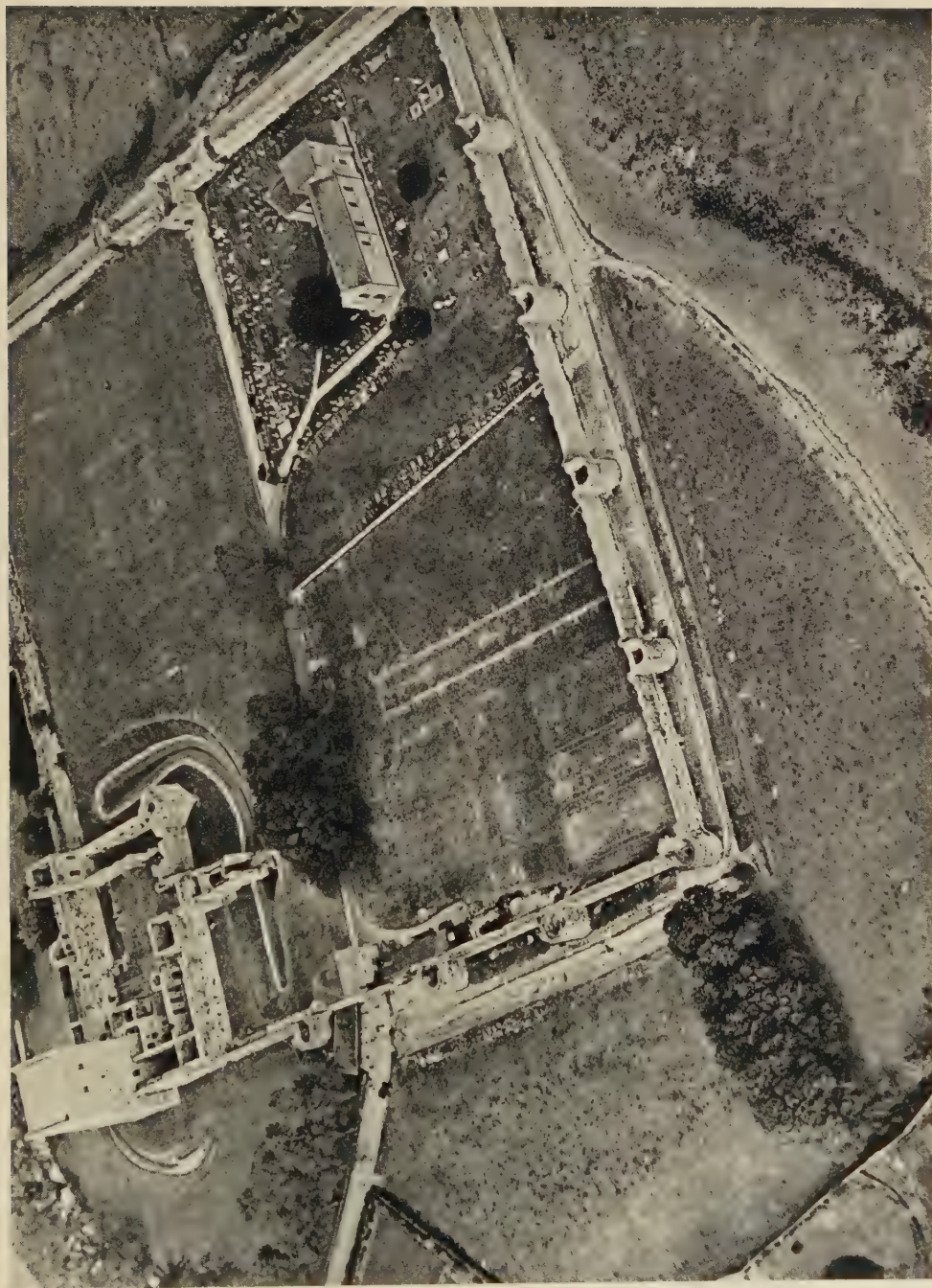
<sup>1</sup> A. M. Tallgren, 'Sur les monuments du Caucase', *Eurasia*, IX, 5; *ANTIQUITY*, 1933, VII, 190-202.

<sup>2</sup> *ANTIQUITY*, 1937, XI, 300-5.

<sup>3</sup> So far as is known nothing about the dolmens of Bulgaria has been published in English.



PLATE I



CROP-MARK OF BUILDING AT PORTCHESTER CASTLE, HANTS, SEEN FROM THE AIR. (See p. 478)  
Ph. Major G. W. G. Allen

PLATE II



CROP-MARK OF BUILDING AT PORTCHESTER CASTLE, HANTS. (*See p. 478*)

*Pl. G. E. 131*

PLATE III



TWO AIR-PHOTOGRAPHS OF THE TARIK EL JEMIL, A CAUSEWAY ACROSS THE LAGOON  
BETWEEN JERBA AND THE TUNISIAN COAST. (*See* p. 479)

*Ph.* O. G. S. Crawford



PLATE IV



FIG. 1. BASKET-HOUSES IN JURA, 1772. (See p. 481)  
*After Pennant*



FIG. 2. BLACK HOUSE, ISLAY, 1772. (See p. 481)  
*After Pennant*

## NOTES AND NEWS

Last year one of two stone forts on Carrigally Hill, on the eastern side of the lake, was investigated ; this season the principal monument being excavated is the second (southern) stone fort and a series of attached house-sites. This fort, though appearing much less imposing than the northern one before excavation, is proving in many respects to be more interesting. The fort walls, which had become almost completely covered over, were found to be about fifteen feet thick and built of massive well-shaped blocks of stone, and the space enclosed was roughly circular with an internal diameter of 120 feet approximately. The entrance was found on the eastern side and is an interesting feature, being particularly well-built. It is five feet wide and at either side is a recess in the stone work into which were slid the two halves of the gate, which closed the entrance. Outside the entrance is a paving of large stones which covered also one side of the approach through the walls. The other side was not paved with large stones, but was cobbled with river pebbles at a lower level. It would appear that when the fort was in use the cobbled surface was used for the horses of the fort dwellers, while the paved path was that used by the inhabitants themselves.

Within the fort, stone paving was found in various places. This represents the floors of the ancient houses and it, as well as such remains of the walls as are available, show that the houses consisted in general of a series of rectangular rooms which were placed together to give an irregular plan. In some of the rooms hearths were found, while outside the houses were traces of other fires in various places, there having been one very large fire just inside the rampart on the eastern side of the fort. A long rectangular house stood also immediately outside the southern side of the rampart, and had evidently been so built that the face of the fort wall was used as one wall of the house.

On the northern side of the fort and lying between this fort and the one excavated last year are the remains of a group of houses with yards which give evidence of a settlement attached to the fort. The discovery of these houses is of importance for the study of early economic and social conditions in Ireland, because almost the only habitations known hitherto are found within fortified sites and it is probable that these Lough Gur houses are only the first of many early houses yet to be discovered in various parts of the country and situated outside forts or completely unattached to such fortified sites. The houses are of different types. All had stone walls and at least one had also a series of wooden posts of which the post-holes were discovered

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inside the walls ; these posts evidently served as additional supports to which were affixed the timbers of the roof which rested on the top of the stone walls.

The ' finds ' consist mainly of implements and ornaments of everyday use : iron knives, spear-head, nails, rings, hooks ; stone spindle whorls, whet-stones, querns, stone mortars, stone axes, hammer stones, loom weights ; flint scrapers and knives ; bone pins and needles, bone spindle whorls, bone combs, scoops ; fragments of a bronze vessel, pins and brooches, rings, glass beads. Outstanding finds are a brooch of silvered bronze with interlacing ornament, a bronze animal-head (zoomorphic) mount, a bronze pin of the type known as a hand-pin. One of the bone combs bears a pleasant ornament of animal heads. A coin found in one of the houses has been identified by a British Museum expert as an imitation of a Roman coin of the reign of Constantius (4th century). Such imitation coins remained in use to a much later date than that to which the originals must be assigned.

A find of considerable interest and importance is a small hoard of Viking silver ornaments consisting of seven pieces ; three fragments of bracelets, a ring and three ingots. The ingots show that the hoard was, or had been, the property of a metal-worker and the fragments of bracelets were obviously intended to be melted down for reworking. The hoard was found in a space among the stones of the inner face of the rampart.

The fort and house-sites may be dated by the finds to the Viking Period—9th and 10th centuries.

A megalithic grave ( ' dolmen ' ) known popularly as ' the Giant's Grave ' is also to be excavated at Lough Gur.



## Reviews

THE FRAME OF THE ANCIENT GREEK MAPS. By W. A. HEIDEL.  
*American Geographical Society, Research Series, no. 20.*

In this book Mr Heidel disclaims any attempt to prove a thesis, but he puts forward a theory to which he has so fully committed himself as to appear, to the present reviewer, to have left his critical faculty in abeyance. The problems of early Greek cartography can only be treated satisfactorily by one who is both a classical scholar and a master of the history and principles of mathematical geography, and Mr Heidel lacks the latter part of this double equipment. Nor could the present writer undertake the task of reviewing his book were it not that ancient authors are cited only in translation. Here lies, of course, a fruitful source of fallacy. A literal translation of an obscure passage relevant to cartography is often meaningless, and the translator's interpretation or gloss is at least as likely to represent his own views as those of the Greek author. Briefly put, Mr Heidel believes that the Frame of the oldest Greek (that is to say Ionian) maps was a rectangle, having its four corners defined by the summer and winter sunrise, and the summer and winter sunset respectively. That these four points marked out on the visible horizon were important in ancient astronomy is not denied. But Mr Heidel declares that they were not merely indicative of direction but were actual places, in India and elsewhere, which he attempts to identify. The lines joining the pair of summer points formed the north 'tropic', that joining the winter points the south 'tropic', while midway between was the 'equator', identified with the axis of the Mediterranean Sea, and passing between the Pillars of Hercules. Lines running north and south, joining the sunset and sunrise points in pairs formed the east and west boundaries of the 'frame'. Nowhere does the author concern himself with the elementary principle that a 'place' is defined by distance as well as by direction, and that the farther away he takes the sunrise or sunset 'place', the farther apart become the north and south 'tropics'. Moreover he does not even determine the azimuths of the solstitial sunrises and sunsets at Miletus, where presumably, the system or 'frame' first arose. In his sketch-map, the northern tropic runs through the mouth of the Tanais, the southern through Syene. The description of this frame-work, it is claimed, occurred in the lost writings of Ephorus, a younger contemporary of Plato, but the claim rests on the assertion that the critical passage of Ephorus is preserved 'more or less completely' in the *Christian Topography* of the late Latin writer, Cosmas Indicopleustes. The

passage is not, however, quoted or critically examined, and Cosmas, as is well known, was attempting to frame a cosmology that should be accordant with the strict letter of Holy Writ. Having evolved a framework and filled it in to his satisfaction, Mr Heidel tells us that this was the map which Alexander used in his Persian campaign, and that from the same map Herodotus had read off his descriptions of Africa and Europe, while Aristotle based upon it his remarks about the Ister. 'As the actual source of the river [Ister] Herodotus names the city of Pyrene. A city of that name is unknown, and a city moreover is not especially (*sic*) appropriate as the source of a river. Aristotle . . . makes the river rise in the Pyrenees . . . One suspects that both authors were referring to maps on which the name Pyrene occurred, and that Herodotus carelessly took it for the name of a city'. Herodotus was not only careless but dishonest, if indeed he was reading from a map the information which he claims to have obtained in various (and quite other) specified ways. But he was not alone. Certain passages in Aristotle's *Meteorology* are difficult to fit in with Mr Heidel's views and 'raise the question whether we are to think of the Stagirite as singularly careless in geographical matters'. Hippocrates was another student of the Ionian map, which 'no doubt' was a main source of his treatise *On Climate, Waters and Situations*. Of this map-reading there is 'clear evidence' in his statement that 'Asia Minor lies midway between the sunrises'. 'This leaves no room for doubt (continues Mr Heidel) that the sunrises were supposed to have a definite position and that Asia Minor was supposed to lie along the equatorial axis of the map'. If by 'definite position' Mr Heidel means 'position at a point', then according to his sketch-map, summer sunrise was about a thousand miles east of the Caspian Sea, winter sunrise about half that distance east of the Indus delta, but we suspect that he uses 'position' in a sense all his own. Hippocrates in his reference to Asia Minor was explaining its admirable climate, and since it is well known that the various 'quarters' of the heavens (or horizon) were associated by the Greeks with 'airs' of specific qualities, it is probable that his meaning was that the Greek lands lay between the 'cold and dry' northeast, and the 'hot and dry' southeast: but to establish such an interpretation a closer study of the text would be necessary.

Mr Heidel follows his discussion of the 'ancient Greek map' with an examination of the theory of a spherical earth, and puts forward the view that the earth was thought of as a flat disc until about 400 B.C. In spite, however, of a wealth of citations, the weakness of the author's mathematical and astronomical concepts leaves the reader doubtful at every point of the validity of the arguments employed, and his contemptuous denial of astronomical knowledge to the Egyptians (p. 101) affords further justification for withholding assent to his views.

E. G. R. TAYLOR.

## REVIEWS

LONDON WALL THROUGH EIGHTEEN CENTURIES: a history of the ancient Town Wall of the City of London, with a survey of the existing remains. By WALTER G. BELL, F. COTTRILL and CHARLES SPON. Issued for the Council for Tower Hill improvement, 30 Trinity Square, E.C. 3. *pp.* 124, 70 *figs.* and *map.* 3s 6d.

Old walls are always fascinating, even the simple lichen-covered field-walls of the West. But the walls of towns are not only a source of pleasure to the beholder; they contain raw materials of history that can be read by the practised eye of the experienced student. They are historical documents and have all the value of original manuscripts. Yet they have been strangely neglected everywhere. It was left for Englishmen to elaborate the history latent in the walls of Rome and Arles. But archaeology, like charity, begins at home, and there are many unsolved teichological problems still left in our own country. The oldest known town-walls of Britain have been articulated by their discoverer, the excavator of Maiden Castle and Verulamium. The next in succession (at Wallingford, Wareham and Cricklade) still await investigation; and remains of others (such as those which once existed at Tamworth, Bedford and Stamford) may yet come to light in the course of digging or slum-clearance. The walls of many towns of Roman origin (such as Bath, Winchester and York) have been incompletely or not at all examined.

In this country the study of the past has to be made to appear romantic if it is to appeal at all effectively to the inhabitants. Paw-marked tiles and mosaic pavements have a glamour that opens hearts and purses more easily than pollen-analysis and potsherds. It is therefore remarkable that up till now 'no book has been published dealing solely with London Wall'. The present book is an excellent handbook, summarizing what is known about it. It will be found useful by everyone, for it sticks to facts, tells you the sort of things you want to know (a rare favour), and is eminently readable. Its only defect, as it seems, is one for which the authors can hardly be held responsible, namely, that it might so well have been much bigger. To produce a big book was not their intention; yet that is what is really required if the riches of the Wall are to be exploited to the full.

But, having said this, and recorded our opinion of the usefulness of this handbook, may we be allowed to go beyond our terms of reference and commit a misdemeanour which quite recently we pilloried in this very journal?—namely, give brief publicity to an idea which is suggested by the subject here deal with. What is really wanted, surely, is an Atlas of London consisting not of facsimiles of old plans (useful as the existing Atlas is), but of a series of plans based upon the secure framework of the Ordnance large-scale map, showing London as it gradually developed from the earliest times onwards. The first



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few plans would have to be small and sketchy, but from 1500 onwards there is ample material for such an attempt. Cadastral plans of parts of the city show the buildings in great detail and on a scale so large that, with uniform reduction, the errors would largely disappear. We have seen such plans, now in the possession of the Goldsmiths' company and other private owners; and there are enough to make possible the compilation of a plan that would be no more and no less incomplete than, let us say, Sir Leonard Woolley's plan of the City of Ur. Such an attempt has already been made (by Colonel G. S. C. Cooke, R.E.) and was published as an inset to the Ordnance Survey Map of seventeenth century England. Documents that have come to light since it was published (and there must be dozens still unrevealed) have amply confirmed its accuracy; and the production of a really adequate map of London itself (if not of all its environs as well) before the Great Fire is merely a matter of a little application, involving some familiarity with cartographic methods.

By such a series, upon a uniform scale (or series) comparisons between one period and another are possible, as they are not when merely facsimiles are available (useful though these are, we repeat, for their own peculiar purposes).

But we have wandered rather far from the subject under review and apologize for the digression. We commend the book heartily to our readers, and congratulate the authors on their public-spirited work. O.G.S.C.

**EXCAVATIONS AT TEPE HISSAR, DAMGHAN.** By ERICH F. SCHMIDT. With an additional chapter on the Sasanian building by FISKE KIMBALL. *Philadelphia: University of Pennsylvania Press, 1937. pp. xxi, 478, 177 figs. and 79 plates. £3 7s 6d.*

The book under review is essentially an excavation report, and at the very outset Dr Schmidt insists on the distinction between the field-worker and the culture-historian in his study—or should one say today public library? Any absence of comparative material and discussion that the book may show is hence advised; instead we are given an immediate publication of results.

Rapid publication is undoubtedly an important factor—other excavations might learn a lot from Pennsylvania in this respect—but it is to be questioned if a too rigorous division of labour, a copying in a cultural sphere of the methods of heavy industry, is ideal, and in a book that is so lavishly produced all but the very specialized readers feel inclined to ask for more in the way of 'conclusions' than can be found here. This is not to belittle the value of the Tepe Hissar excavations, however, nor the quality of the archaeological work and its presentation, which could hardly be more accurate or fuller.

A short preliminary chapter is devoted to trials in and around Damghan, made to ascertain the whereabouts of the Parthian Hecatompylos. This was

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not located, and in each sounding the earliest remains were fairly late Islamic. Only the *Tarikh Khane* at Damghan proved to be early Islamic ; its construction is still in the Sasanian manner.

The greater part of the book is devoted to a detailed account of the pre-historic Tepe Hissar. Three distinct cultures and eight continuous cultural phases are distinguished. Hissar I (pp. 21-105) consisted of a medley of small chambers of undistinguishable character, and the most important finds were of painted pottery. This could be divided into three classes—the first hand-made, the second wheel-made with animal ornament, and the third akin, but with more developed ornament, often of real aesthetic quality. Copper objects as well as stone implements were found. The numerous burials in this, as well as in later strata, are very fully described, with a sketch diagram for each burial, and the pottery is excellently published. The physical remains will be dealt with in a future volume, which should afford information of the first importance, for 782 burials were uncovered in the second season.

The buildings of Hissar II (pp. 106-54) do not seem to have been quite as extensive as those of Hissar I, nor were they so well preserved. The period was distinguished by a characteristic gray pottery, the appearance of which is attributed to an invasion from the North (p. 112), but painted ware continued to appear alongside it.

Hissar III (pp. 155-296) presented a more imposing building than either of the other layers, and the finds were also more impressive, in that alabaster vessels were plentiful, and there were some fine objects of early Bronze Age type, actually made of copper. The gray pottery of Hissar II continued, but showed certain definite changes.

The relative chronology is examined in a separate chapter (pp. 297-326), in which Schmidt concludes that Hissar I preceded the proto-Elamite of Susa or Jemdet Nasr in Iraq, and that Hissar II was more or less contemporary with them. Hissar III is provisionally dated to the first half of the second millennium B.C. If the lowlands were the main centres of culture, rather than the uplands of Persia, one would incline to date all the periods at Hissar rather later.

A separate mound concealed an important Sasanian palace, described in chapter IX (pp. 327-46) and discussed by Fiske Kimball in chapter X (pp. 347-50). His reconstruction is an improvement on an earlier one of Gerasimoff, but in view of our scanty knowledge of Sasanian architecture it cannot be regarded as final. Of the two dates suggested for the palace, the third and the fifth-sixth centuries, the later one seems far more likely on the grounds of the style of the stucco reliefs.

The book is admirably produced and illustrated, and comes as a welcome addition to our none too abundant material on ancient Iran. D. T. RICE.

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DER DONAULÄNDISCHE UND DER WESTISCHE KULTURKREIS  
DER JÜNGEREN STEINZEIT (Handbuch der Urgeschichte Deutschlands, 2). By WERNER BUTTLER. Berlin : Walter de Gruyter, 1938. pp. 108, 24 plates, 5 maps. RM. 6.80 (5.80 unbound).

In its main outlines the story here revealed is familiar to readers of ANTIQUITY : the spread of Danubian peasants brought the elements of neolithic culture to Germany and the Rhine basin, there to be enriched by contributions made by relatives of our own Windmill Hill population arriving from the West. But nowhere is the story so fully documented. The intensive German research of the last five years, here recapitulated, has filled in many gaps ; the mechanism of Danubian expansion has been disclosed ; the picture of neolithic civilization presented is amplified by details of domestic architecture and economics that are quite novel. The whole is illustrated by a wealth of excellent photographs, sketches, plans and distribution-maps. The production of such a compendious and yet readable textbook with all its half-tone plates and even coloured maps for the trifling price of RM. 5.80 is an example to British and American publishers.

Moreover, Buttler's completely objective book relieves us of uneasy doubts as to the feasibility and legality of publishing genuinely scientific work in the Third Reich. The chronological framework is not based on subjective typologies that can too easily be adjusted to fit theories dictated by political prejudice, but on public facts impartially observed and recorded observations made at meticulous excavations, and on an intensive study of the concrete relics, aided by the co-operation of botanists, geologists and zoologists. At many sites the sequence of cultures has been established by the intersection of pits, and unimpeachable synchronisms are attested by the interchange of distinctive ceramic and other products. The scheme, deduced from fresh observations of unprecedented accuracy, in general agrees very satisfactorily with that set forth in the Chronological Table published in ANTIQUITY, June 1932. It looks, however, as if the groups defined by the later spiral-meander, stroke-ornamented and Rössen wares should all be transferred to Period II when the Theiss (' Lengyel ') culture was already developed in the Middle Danube basin. (An early Theiss vase from eastern Hungary found in a Silesian settlement with stroke-ornamented ware is one of the most convincing and dramatic synchronisms cited). And the celebrated Jordansnmühl cemetery in Silesia is certainly to be treated as parallel to the Copper Age of Hungary (period III). The absolute dates assigned to the several cultures also agree closely with those suggested in the Table. But Buttler recognizes that such figures are just guesses ; in the light of the latest Mesopotamian discoveries they seem less plausible in 1938 than in 1932.



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In discussing the origins of the several cultures Buttler is equally unprejudiced. The origin of the oldest Danubian 1 complex is left rather vague, but from the standpoint of Germany definitely southern; the Theiss culture is admittedly Hungarian. But stroke-ornamented and Rössen cultures are explained as due to the adoption of a Danubian equipment by mesolithic survivors in Bohemia and Central Germany. The derivation of the Rössen ceramic style from that of the northwest German megaliths and the consequent affiliation of the cultures it defines to the Nordic, which had become a dogma of German prehistory, is emphatically and convincingly refuted; Rössen equipment and architecture is fundamentally Danubian; the similarity of its pottery to the northwest German is due perhaps to a common mesolithic substratum.

Buttler's book is the first published volume in a series which will cover the whole of German prehistory from the Old Stone Age to the Vikings. The names of the contributors—Schwantes, Sprockhoff, Kraft, Zeiss—in themselves guarantee the scientific character and high standard of the volumes to come. When completed they will provide a complete conspectus of the prehistory and protohistory of the best-studied region in Europe, conferring an inestimable boon on students and amateurs. As they should find many readers outside Germany we might suggest to the editor that, not only for the sake of precision, the scientific names of animals and plants should be given. V. G. CHILDE.

THE MIND OF THE ANCIENT WORLD: a consideration of Pliny's *Natural History*. By H. N. WETHERED. *Longmans*, 1937. pp. xv, 302. 12s 6d.

The purpose of this interesting book is to introduce Pliny to English readers, who have not the time or the knowledge necessary for exploring his voluminous writings in the original. It gives a clear impression of the miscellaneous contents of the *Natural History*, classified under numerous headings, which include science, painting, sculpture, medicine, 'travellers' tales', etc. The writer is familiar with wonder-tales from Herodotus to Mandeville, and his quotations from English literature range from Shakespeare to Dickens. He does full justice to the superhuman industry of the compiler of this vast encyclopaedia of knowledge and legend, and notes the mixture of credulity and common sense which characterizes it. There are occasional lapses—it is a rather serious inaccuracy to say that Scipio Nasica *invented* the water-clock, an instrument which was in use centuries before his time; and misprints such as *anapanomenos* seem to indicate that the proof-reader has forgotten his Greek; but such minor blemishes do not detract from the book's peculiar interest. The quotations (over 150 in all) from Philemon Holland's translation are an attractive feature. To the many readers who may be stimulated by reading Mr Wethered's book

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to turn to the original for further information on any of the topics which he discusses, it will be a matter of regret that the only references given are to Holland's work, which is not readily accessible to every scholar. In the case of other classical and modern authors who are frequently quoted, no references are given at all—and not all of us can at once turn to the required page in Herodotus or Seneca.

J. F. DOBSON.

PERSEUS : a study in Greek Art and Legend. By JOCELYN M. WOODWARD. *Cambridge University Press*, 1937. pp. XIII, 98, 35 illustrations. 6s 6d.

Mrs Woodward has chosen an interesting method of introducing beginners to the study of Greek Art. Taking as her subject the familiar story of Perseus and the Gorgon, about which, as she says, many of us know little more than we learned in early days from Kingsley's *Heroes*, she begins by collecting the literary material of the story from early authors, who are dated as far as possible. The legend is then illustrated by a selection of pictures ranging from primitive clay statuary of the 7th century, through the vases of the best periods, right down to Hellenistic and Roman representations. The author's opinion is that the artist—particularly the vase-painter—reflects the mental attitude of the ordinary citizen towards the legend ; the development from the archaic grimness to the delight in beauty of form and composition corresponds to political and social changes.

From the short discussions of the technique of successive schools of painting which accompany the illustrations, we may gather a general idea of the development of art and artistic feeling through the ages. An interesting point is made by showing the influence of dramatic productions on the composition of some of the later groups.

J. F. DOBSON.

ARCHAEOLOGICAL HISTORY OF IRAN (Schweich Lectures, 1934).  
Par E. HERZFELD. *London : H. Milford*, 1935. pp. 112 and 19 plates.  
7s 6d.

Nous avons peu de renseignements, avant l'époque de Salmanasar III (IX<sup>e</sup> siècle avant notre ère), sur l'Iran préachéménide. A cette époque, les Médes et les Perses de race Aryenne sont installés sur le plateau, les premiers au Nord, les seconds au sud ; et les Perses essaient en vain de secouer le joug des Médes dont ils dépendent. Sous les Achéménides on constate un profond changement dans les conceptions religieuses de l'Iran, sous l'influence de Zoroastre que M. Herzfeld date de Cyrus ou de Cambyses. Après la période des Parthes Arsacides, dont la domination a laissé sa trace dans de multiples temples ' du feu ', la dynastie Sassanide préside aux destinées de la Perse, de 224 jusqu'à la domination des Arabes.

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M. Herzfeld s'est attaché au cours de ce volume, en partant des monuments que nous connaissons, à retracer le cours de cette histoire ; quelques rares que soient parfois ces monuments, ils suffisent à montrer la continuité du développement du génie iranien. Même pendant la période où l'hellénisme a été le plus intense en Iran, l'esprit oriental est préservé. A la période sassanide, malgré l'influence de l'art grécobactrien par exemple, l'art reprend certains des principes de l'art oriental. En somme, l'influence grecque, malgré ses progrès en surface, n'a jamais pénétré profondément en Iran, et la période sassanide est le prélude à la réaction qui replace la Perse dans la ligne primitive de son développement, qui favorise ses qualités purement iraniennes.

Si toutes les idées qu'apporte M. Herzfeld peuvent ne pas être entièrement acceptées, son livre, de lecture attachante, est une vue d'ensemble très originale sur le développement du foyer de civilisation qui a toujours tenu un rôle prépondérant dans le proche Orient.

G. CONTENAU.

ANCIENT CYPRUS. By STANLEY CASSON. *Methuen*, 1937. pp. 214, 16 plates, map. 7s 6d.

The revival of interest in Cyprus, which has taken place in the last decade, has made the lack of a popular handbook to the island's antiquities—as an introduction to Myres' 'Cesnola Handbook' and Gjerstadt's 'Studies'—a great handicap to both student and tourist. This book does for the remains of antiquity what 'Historic Cyprus' has done for the medieval monuments, but on a less detailed scale.

The period covered ranges from the earliest times to the Roman occupation, but the treatment of each period is by no means equal in detail, a restraint for which much praise is due. The age of the maximum external importance of Cyprus is well reflected, for the centre of discussion is largely focussed on that most dangerous of periods (for the non-expert), the Mycenaean.

The first chapter makes lamentable reading, as a record of vandalism and lack of care and of interest. The history of Cypriot archaeological exploration is not a happy one, but there are a few exceptions. Mr Casson does rather less than justice to Hogarth's *Devia Cypria*, which is not all waste to the field-worker. There is in this chapter an implied suggestion which is well worthy of further consideration—that the history of modern Cypriot pottery would be a profitable field of investigation.

The prehistory of Cyprus is rich and interesting, and we can only regret that 52 pages are allotted to it, for the Mycenaean period has thus reduced the treatment of the Neolithic, Early and Middle Bronze Ages. The author is surprised at the 'virtual failure' of the Swedish Cyprus Expedition to identify neolithic sites. If the excavations at Petra tou Limniti, Kythrea, Lapethos and



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Frenaros (not mentioned in this context) are to be thus regarded, well may surprise be expressed.

Mr Casson objects to the term 'preneolithic' as applied to Petra tou Limniti; but if the accepted definition of neolithic is to be retained, as against Albright's 'ceramolithic', no other term is possible—for surely a requirement of the 'neolithic' as understood at present is the ability to make pottery.

The problem of the appearance of the Early Bronze Age is discussed at some length, and several solutions are suggested—an interval of uninhabitation, a decline in population, in ideas and ability, or the superimposition of a new Early Bronze Age folk on the neolithic inhabitants. The apparent lack of continuity between the Neolithic and Early Bronze Age is stressed, but it is never suggested that the one could have developed from the other. If not, where did the Early Bronze Age come from? There is a generic connection with the west Anatolian wares, and perhaps with those of the southwest central Anatolian province, but it is sufficiently vague to be discussed without having to produce examples or parallels. Recent excavations in the Troad, at Kusura, in Cilicia, and at Alaca Hüyük have failed to advance the Anatolian connexion of the early Cypriot period beyond the nebulous—and in the Troad and at Kusura the evidence antedates the third millennium B.C. Similarly Syria, Palestine and Egypt are ruled out. But 'the forms of this new pottery are nowhere found so abundantly and in so much variety as in Cyprus'.

In Cyprus the study of the earliest phases of the Early Bronze Age and of the latest phases of the 'neolithic'—we may call it the chalcolithic—is still in its infancy. No really extensive excavations have been carried out on a neolithic site, and less than 80 tombs of phase I of the Early Bronze Age have been opened, in the island—it is not even certain that the so-called Early Bronze Age I is the earliest phase. Certain factors which Mr Casson puts forward as proof of the discontinuity are not quite correct. Not only do painted patterns occur in the last half of the Early Bronze Age (page 32) but in the first half a bichrome style of decoration was in use, obtained by reserved bands of buff against the red slip. Very distinct flat bases are to be found in the period, *e.g.*, at Arpera and at Vounous—(cf. Gjerstadt, 'Studies in Prehistoric Cyprus' pages 90–92)—and we now know that pronounced flat bases are the usual form for larger pots and for many of the smaller shapes in the earliest phase. While agreeing with Mr Casson that time will solve the problem, the reviewer believes that a strong case can be made out for the continuity from the Neolithic to the Early Bronze Age.

There is a scathing indictment on page 34 of the abilities or rather the productions of the Cypriot potters in the Early and Middle Bronze Ages. Yet he could often achieve pleasant shapes and sometimes real beauty of form and decoration.

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The last portion of the chapter brings the reader by way of the Middle Bronze Age to the Late Bronze and Mycenaean period, and thus to the great age of controversy ; the review of the evidence is thorough but to the non-expert terrifying. Sometimes Mr Casson is rather harsh (pp. 44-50), but in the case of the chariot vases it appears that Prof. Gjerstadt will be justified.

The chapter on the Script is perhaps the most useful in the book, and is a great advance on previous knowledge. It is concluded that a mainland Greek connexion is to be sought for the origin. There is a table of the signs which have been recorded up to the date of publication. The chapter closes with a discussion of the signs on 'Mycenaean' vases, probably imported from Cyprus to Tell Abu Hawam in Palestine.

The evidence in favour of the equation Alasia-asi=Cyprus is studied. If this is to be accepted a very considerable degree of Hittite control of the island in the XIV-XIII centuries B.C. must be admitted, and archaeologically this raises some difficulties. The strongest point seems to centre round the question of the copper mines—and it seems impossible to deny that some of these were being worked during the Mycenaean period in Cyprus. In reference to the footnote on page 125 it may be worth recording that two ingots similar to that depicted on plate VIII are in a private collection in Famagusta, possibly from Enkomi, certainly from Cyprus.

There is an efficient index. The plates are well chosen and excellent and strike a pleasant balance between the objects and Cyprus itself. J.R.S.

THE ALISHAR HÜYÜK : seasons of 1930-32, parts I-III. By HANS HENNING VON DER OSTEN. *University of Chicago* : Oriental Institute Publications, XXVIII-XXX ; *Researches in Anatolia*, VII-IX. Part I, pp. XXII, 283, 10 plates (6 in colours), 281 figs. 20 dollars. Part II, pp. XXII, 481, 26 plates (3 in colour), 513 figs. 35 dollars. Part III, pp. XXII, 496, 15 plates (5 in colour), 20 maps, 9 tables, 289 figs. 25 dollars. *University of Chicago Press*.

Alişar is at present the standard by which all early settlements in central Anatolia must be measured, for there is as yet no other site which covers the chalcolithic age, the early age of metal, the Hittite and Phrygian periods. Thus, while the history of the Hittites and Phrygians is amply illustrated, the prehistory of their forerunners is well represented : it goes back no further than the first appearance of metal in a country where neolithic antiquities have not been found except in the Troad, and where paleolithic remains are still scarce and uncoordinated.

Three volumes previously published have acquainted us with the Chicago University Expedition's discoveries up to 1930 ; three more, the subject of this

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review, embody the results of work done in 1930, 1931 and 1932, when scarcity of funds put an end to the campaign. During those later years certain important additions were made to our knowledge: the chalcolithic levels were explored, the fortifications traced, and the period of the Hittite empire fully investigated. In consequence, it is not only fresh finds which are now introduced to us, but facts which modify our whole outlook. In addition, we are presented with a comprehensive survey of the products of the excavation as a whole, with tables showing the sequence of types in pottery, statuettes and other objects. This survey is not only convenient but also necessary, since the order and nature of the cultures on the mound and city terrace of Alişar were misinterpreted in the former accounts.

It can now be proved that what used to be called Alişar III, with its 'Cappadocian ware', started earlier than Alişar II, recognized since 1931 as the period of the Hittite empires; while Alişar IV, originally believed to be Hittite, can safely be identified as Phrygian. New names must consequently be found for all stages: even Alişar I can be no longer, since it overlies chalcolithic deposits. The following table shows the system proposed by Dr von der Osten, and the most familiar of those it supersedes.

<i>New Names</i>					<i>Old Names</i>
Chalcolithic	..	..	..	..	—
Copper Age	..	..	..	..	Alişar I
Early Bronze Age	..	..	..	..	Alişar III
Hittite Empires	..	..	..	..	Alişar II
Post-Hittite-Phrygian	..	..	..	..	Alişar IV

In view of the modern reaction against the terms 'Bronze' and 'Copper' Age, so variously applicable in different parts of the world, so liable to inaccuracy unless all metal utensils can be analysed, his choice is unfortunate; all the more so since bronze, we are frankly told, was present in the 'Copper Age'. The situation is difficult for us and difficult for him by reason of his predecessors' unlucky experiments. A further complication is introduced by a difference of opinion between him and Dr Bittel concerning the latter's subdivision of Alişar I, well known to readers of *Prähistorische Forschung in Kleinasien*.

There are, however, many other problems which archaeologists must consider together with the author's own interpretation of them. It will be convenient to consider them chronologically.

The chief feature of the Chalcolithic Age was the production of fruit-stands resembling the Danubian ones in shape though not in fabric or decoration. It is as yet impossible to judge what connexion, if any, exists; nor can we safely assume that the stage to which they belong is contemporary with Troy I and other



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primitive Anatolian sites. It would, therefore, have been better not to discuss these in the same section. The succeeding phase ('Copper Age', Alişar I) is marked by monochrome wares, which, together with some of the small finds, have sufficient resemblance to those of the Hittite period to raise the question whether there was a fundamental kinship of population: Dr Bittel favours this view, with which I am personally in sympathy. Dr von der Osten opposes it, one of his reasons being that the skulls of the 'Copper Age' are dolicho- to mesocephalic, those of the Hittite period brachycephalic. The makers of the dark-on-light Cappadocian pottery ('Bronze Age', Alişar III) confuse the issue by arriving at the close of the 'Copper Age' and interrupting the sequence of monochrome wares.

Cappadocian seals datable to about 2000 B.C. occurring in deposits of undoubted Hittite character give a valuable fixed point for dating: here we are on solid ground. But few will follow Dr von der Osten in deriving the early Hittite empire from the east, the later empire from the west, since the civilization which both cover is too uniform. Moreover there are linguistic and ethnological arguments in favour of continuity which are supplied by Dr Göterbock, and, with truly scientific honesty, quoted by our author. The Phrygian period, after 1200 B.C., provides matter for study rather than for controversy, while the still later occupations of the settlement—Hellenistic, Byzantine, Osmanli—are comparatively unimportant.

So much for the material. It is presented on a more lavish scale than is usual with dig reports, for obviously no expense has been spared in illustration, or letterpress. The illustrations are welcome, though if the folding figures had been collected at the end of each volume, reading would have been less laborious. The text, however, suffers somewhat from the inclusion of unnecessary subjects: *e.g.* the chapter on history—ancient, medieval and modern—and much of the chapter on physical types by Dr Marion Krogman, whose nucleus of important conclusions is embedded in a treatise on anthropology which is marred here and there by dependence on popular archaeological text-books. Even the author's own discussion of the cultural relations of Alişar gives too much space to summaries of other sites without considering the parallels, significant and interesting though they may be, for individual objects. Another point which calls for criticism is the references, which naturally cannot all be brought up to date. It does not matter if only the 1930 preliminary report on Thermi is used, but the remarks on Trojan goblets (III, 420) require revision as they affect chronology. Warm gratitude is nevertheless due for the full and careful records of strata, architecture and objects found; the inclusion of specialists' reports on bones, coins, metal and other things; and the way in which information is generously and adequately placed at the reader's disposal.

W. LAMB.

## ANTIQUITY

THE MATERIALS OF MEDIEVAL PAINTING. By DANIEL V. THOMPSON.  
*Allen and Unwin. pp. 239. 7s 6d.*

This learned and scholarly book is typical of an author writing of his favourite pursuit. Mr Thompson's evident enthusiasm for the things he deals with lends his material a lively style that elevates it from a mere catalogue to a book which, given a certain interest in the subject, is quite pleasant to read.

Mr Thompson's writing has the characteristic thoroughness of his countrymen. In his book we learn the sources of the hundreds of pigments used in medieval painting; how they are extracted from these sources; how white of egg, gum, and other substances are mixed with them; why some pigments are better suited for tempering with one medium than another; how they are applied to the various grounds, whether walls, woodwork, canvas or parchment; and by what means they are preserved and kept in place when the picture is finished.

These are the main outlines of the book; they are lavishly filled in with details of chemistry and technique, and with apt quotations from works of art. As far as there is any deeper significance behind this erudition and painstaking attention to detail, it is that the medieval artist was at the same time a craftsman—a quality sadly lacking in modern artistic circles.

WAYLAND DOBSON.

STAINED GLASS OF THE XII<sup>TH</sup> AND XIII<sup>TH</sup> CENTURIES FROM  
FRENCH CATHEDRALS. 19 *plates in colour photographed from the  
original glass with an introduction by G. G. COULTON, and text by MARCEL  
AUBERT. B. T. Batsford, 1938. pp. 12. 10s 6d.*

Dr Coulton characteristically and charmingly puts to his readers the point of view of 'medieval people' with regard to their church windows. M. Aubert gives a valuable and also short treatise on the evolution and technique of early stained glass. But the *raison d'être* of the book is the coloured plates. The cathedrals from which the windows are selected are Bourges, Le Mans, Chartres, Poitiers, Sens and Amiens. We are told that 'the plates are produced by the Iris Press, by direct photographic process from the original windows. They are the first accurate colour reproductions of these stained glass windows'. This claim to accuracy is well substantiated, and anyone who has seen the windows will be delighted to have these reproductions to study at leisure. To those to whom the glories of early French glass are unknown they should prove a revelation. The producers are to be congratulated on so satisfactory an achievement. We should like to see both the misprint and mistranslation on page 9 removed in the next edition.

DINA P. DOBSON.

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## CORRIGENDA

- page 270, line 30, *for Orkney read Shetland*  
 „ 280, line 10, *after Orkney insert and Shetland*  
 „ 291, line 2, *for Sliventza, read Slivnitza*  
 „ 291, note 7, *for Avezon, read Avezou*  
 „ 292, line 16, *for Bruchenthal, read Bruckenthal*  
 „ 293, note 23, *for Arnandoff, read Arnaudoff*  
 „ 295, line 31, *for Jărgoviște, read Tărgoviște*  
 „ 295, note 36, *for Mitteslides, read Mitteil. des*  
 „ 365, *see note of correction to page 152.*





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# Antiquity

A QUARTERLY REVIEW OF ARCHÆOLOGY



*Edited by*

*O. G. S. Crawford, F.S.A., and Roland Austin, F.S.A.*

**DECEMBER 1938**

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